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Evaluation of Think Blue Massachusetts' Social Marketing Campaign

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An Interactive Qualifying Project submitted to the faculty of Worcester Polytechnic Institute in partial fulfillment of the requirements for the Degree of Bachelor of Science

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ABSTRACT

Think Blue Massachusetts is a campaign dedicated to educating the public on stormwater. Stormwater pollution is melted snow or rain that carries pollutants into local waterbodies. The goals of this project were to evaluate the effectiveness of the Think Blue Massachusetts social media campaign, develop improvement strategies, and create a social marketing guide for further expansion. We researched various social media platforms and analyzed Think Blue Massachusetts' past website and Facebook effectiveness. The project resulted in recommendations regarding social media management and metric collection. Content for different platforms was suggested as well as directions for future advertising efforts and how to analyze those efforts.

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EXECUTIVE SUMMARY

Introduction

Stormwater is water generated from rainfall or melted snow, and stormwater pollution is when human waste or natural dirt and sediment are swept into waterbodies by this melted water (EPA, 2016). This is an ongoing environmental threat projected to increase in severity unless mitigation steps are taken. Think Blue Massachusetts, an educational program, is trying to alleviate stormwater pollution by raising awareness amongst the public. In turn, they are hoping that this cognizance translates into a change in behavior and support among the public to endorse Municipal Separate Storm Sewer Systems (MS4) water quality efforts (Kerry Reed, 2019). In late 2017, the Think Blue campaign was formed by the Massachusetts Statewide Municipal Stormwater Coalition to help towns comply with MS4 requirements of the US Environmental Protection Agency, which requires Think Blue to produce an annual evaluation of progress. Think Blue Massachusetts, as a new initiative, had few people dedicated to maintaining their social media presence, and thus has not monitored the metrics of their Facebook page and website. To improve their operations, Think Blue Massachusetts wanted to know which of their efforts had reached individuals most effectively and what tools best support education about stormwater pollution. They wished to expand and measure the effectiveness of their outreach to the public, in order to increase public support for the issue through awareness.

Mission, Objective & Methods

Our mission therefore was to evaluate the effectiveness of the Think Blue Massachusetts campaign's social marketing efforts, develop improvement strategies, and create a social media guide to provide coalitions, towns, and individuals with resources to utilize social media more effectively. To do so we first researched major social media platforms like YouTube. Facebook, and Twitter. Our research focused on attributes such as demographics, how to advertise on each

platform and the metrics each platform provides. We evaluated the current metrics of Think Blue's social media postings and advertisements to determine the effect these outreach attempts have had on viewers.

Findings and Analysis

We researched social media platforms to gain insight into their individual benefits for Think Blue Massachusetts' social marketing campaign. YouTube is an essential tool in marketing strategies due to its large User base. Currently, millennials (roughly aged 18 – 35) prefer YouTube over television. It is predicted that by 2025, 50% of viewers under 32 will not be subscribed to paid television (Omnicore, 2019). Additionally, YouTube reaches more people in the 18 – 49 age group than any cable network in the U.S. Facebook is currently the most used social media platform for all age ranges, with 214 million unique active monthly users in the United States (Statista, 2019). Facebook is the social media platform most used by adults from 30 - 64 years of age. Think Blue Massachusetts has not previously used Twitter; however, it might be a useful tool for their campaign. Twitter's largest age demographic is 18 – 29 years old, and in recent years, Twitter has become an important platform for advertising and reaching young adults.

Wix and Google Analytics offer a variety of metrics that can be used by Think Blue Massachusetts to monitor their website's activity, but Google Analytics provides a free service that enables more descriptive and comprehensive tracking. It also works as a platform which can monitor multiple websites or applications simultaneously.

Think Blue currently has a Google Analytics page for their website. Reach, or the total number of people who have seen an ad or web page, has been determined as the most effective metric to watch for the first campaign year. Adding the number of Returning and New Users on the website will net a Total Users base of 3,998 since May 1st, 2018. The statistics shown in

Google Analytics states that advertisements on social media increases the Total Users on the website.

Think Blue's Facebook Insights summarize the page's activity. From June 15 to June 27, 2018, Think Blue's Facebook reach was nearly 600,000 people who had content appear on their screens as a result of a Think Blue paid post advertising effort. On the other hand, the majority of Think Blue's non-paid Facebook posts have a reach of under 100 users and under 10 total Engagements. Think Blue's video content has received 594,500 views.

Recommendations and Conclusion

We recommend that Think Blue Massachusetts launch advertisement campaigns on YouTube and Facebook. Additionally, they should activate Promote Mode, a service that advertises all tweets for a monthly fee on Twitter. Advertisements have been used by Think Blue in the past and have caused the number of Impressions and Views on their content to increase. The current need of the campaign is to increase their outreach and views and spread their message to new audiences. By using paid advertisement services provided by the respective social media platforms, Think Blue can expand their reach and achieve their goals.

Using Facebook and Twitter regularly will increase the brand's Reach and Engagement. Maintaining a regular posting schedule shows the audience that the brand is active and genuine, as well as keeps up User Engagement. The report identifies optimal times for posting on both social media platforms, though the number of daily or weekly posts can be determined by the social media administrator. Facebook should be used to showcase information and happenings, whereas Twitter is more fast-paced, and should be used to post new and concise messages. Additionally, avoid cross posting on both platforms simultaneously.

We recommend that website and social media metrics be analyzed via Google Analytics periodically to evaluate the campaign's progress. It is useful to focus on one or two metrics and

to showcase their performance in Steering Committee Meetings. At this time, Think Blue Massachusetts does not need to monitor each of the hundreds of metrics currently available. The metrics most relevant to their goals are Reach, Engagement, and Impressions. It would be useful for Think Blue to hire a college student (or possibly a volunteer) for a few hours a week to maintain the campaign's social media presence. Finally, another promising outreach option is to become a vendor at a festival or fair. Some of these events are known to attract thousands of people and would give Think Blue an opportunity to spread their message and social media handles.

Chapter 1: Introduction

Stormwater pollution is an ongoing environmental threat that is projected to increase in severity unless mitigation steps are taken (EPA, 2016). Stormwater is water generated from rainfall or melted snow. Due to impervious surfaces, such as paved areas like streets, much of the water is unable to absorb into the ground. As the water travels, it picks up a variety of pollutants and toxins before making its way into local waterbodies or sewer systems (EPA, 2018b). Although nonpoint source pollution, which is pollution from diffuse sources, is the largest contributor to this issue, point source pollution, which is an individual, identifiable source of pollution**,** still has a considerable impact. The waterbodies which receive stormwater face negative impacts on water quality and wellbeing of habitats and animal life (EPA, a). Additionally, stormwater carries pathogens and heavy metals (Jaishankar et al., 2014). Thus, stormwater is potentially responsible for a host of issues. Think Blue Massachusetts, an educational program, is trying to alleviate stormwater pollution by raising awareness amongst the public. In turn, they are hoping that this cognizance translates into a change in behavior and support among the public to endorse Municipal Separate Storm Sewer Systems (MS4) water quality efforts (Kerry Reed, 2019).

In late 2017, the Think Blue campaign was formed by the Massachusetts Statewide Municipal Stormwater Coalition, which itself consisted of ten regional stormwater coalitions. The Statewide Coalition received a grant of at about two hundred thousand dollars from the Massachusetts Department of Environmental Protection (MassDEP) in June 2017. Previously, the coalitions had helped their member communities in adhering to environmental protection standards like the Total Maximum Daily Load, which is the amount of pollutants a town can discharge per day to water sources (EPA, 2014)**.** Think Blue, however, aims to educate stakeholders about stormwater, including by targeting the municipal, industrial, and commercial sectors (Think Blue Massachusetts, b). The coalitions have used the Think Blue campaign in order to meet the yearly educational outreach requirements for the MS4 (Kerry Reed, 2019). Think Blue therefore requires an annual quantitative and qualitative evaluation of progress, as

well as occasional consultation and advice as to the direction the program should take (Andrea Briggs, 2019).

Think Blue Massachusetts, as a new initiative, had few people dedicated to maintaining their social media presence, and thus did not monitor their metrics . In order to improve their operations, Think Blue Massachusetts wanted to know which of their efforts had reached individuals most effectively and which are the best tools for education about stormwater pollution. Furthermore, they hope that public support would increase township funding on water quality regulation. They wished to expand and measure the effectiveness of their outreach to the public, in order to increase public awareness.

The goal of this IQP was therefore to assist Think Blue Massachusetts in improving their outreach and effectiveness. The first objective was to collect and evaluate the data on Think Blue's performances throughout the past year. A summary of their current outreach efforts and impacts was provided, as well as metrics to support which efforts are worth maintaining. A second objective was to provide them with a "how-to" social media marketing guide so that Think Blue Massachusetts has the tools required to more effectively use social media in their campaign.

Chapter 2: Background

Stormwater is water from rain showers or melted snow that is unable to soak into the soil. It poses both environmental and social issues stemming from the pollutants that it carries, ranging from habitat destruction to public health risks (EPA, 2018b). Think Blue Massachusetts formed as an educational effort to raise stormwater awareness in order to change individual behaviors towards the reduction of the issue (Think Blue Massachusetts, b).

The federal government has enacted many regulations regarding stormwater, most of which stem from the Clean Water Act (CWA), an effort to keep US waters clean (EPA, 2013). There are two permits distributed by the US government: the National Pollutant Discharge Elimination System (NPDES) and Municipal Separate Storm Water Systems (MS4) permits. The former is used to regulate the discharge of pollutants into waterbodies (EPA, 2018b), and the latter is focused on the implementation of educational programs in permit-holding communities (Think Blue Massachusetts, b).

The Massachusetts Department of Environmental Protection (MassDEP) provides materials and funding for the statewide organizations. On a municipal level, the MassDEP works as the regulator: the organization in charge of making sure all requirements are met. In accordance with this, the MassDEP works very closely with the Massachusetts Municipal Statewide Stormwater Coalition (Statewide Coalition) and the Central Massachusetts Regional Stormwater Coalition (CMRSWC). The Statewide Coalition was formed by ten preexisting stormwater coalitions. The collaboration between these coalitions and the MassDEP provides the necessary infrastructure to adhere to stormwater regulations, which the towns would not have been able to produce on their own (Massachusetts Municipal Association, 2018).

This chapter introduces the federal, and statewide regulations relevant to Think Blue Massachusetts' mission, as well as information regarding the campaign itself. Some methods involved in public education are briefly covered. Finally, the program evaluation process is described in order to develop the framework of Think Blue Massachusetts' required evaluation.

2.1 Stormwater Background, Implications, and Think Blue Maine

Stormwater is water from rain showers or melted snow that is unable, for a variety of reasons, to soak back into the soil. Impervious, paved surfaces such as streets, building rooftops, driveways, yards, paved pathways or parking lots prevent this water from entering the ground. This water, also called stormwater runoff, flows over these surfaces and encounters a variety of toxins and pollutants, which range from large, visible pieces of litter to harmful chemicals throughout its travels (EPA, 2018). The toxins that embed themselves in stormwater pose a multitude of adverse impacts on the environment and to public health. These potential issues arise especially once the stormwater merges with local bodies of water or sewer systems. The sources of stormwater pollution that contribute most to this ongoing issue relate to humans and their developments, such as urbanization (San Francisco Better Streets, 2015).

2.1.1 Sources of Stormwater Pollution

In urbanized areas, a significant volume of stormwater is generated from sources such as residential, commercial, and industrialized areas, roads, highways, and bridges (EPA, 2015b). Thus, the development of such urban areas, in tandem with population growth, contributes both to the overall volume of stormwater and also to the amount of pollutants it contains (EPA, 2018b). The stormwater runoff produced in such environments, where the majority of surfaces are impervious, is considerably greater than areas with more natural ground. Figure 1 illustrates the differences between ground infiltration (absorption), evapotranspiration, and ultimate runoff of stormwater.

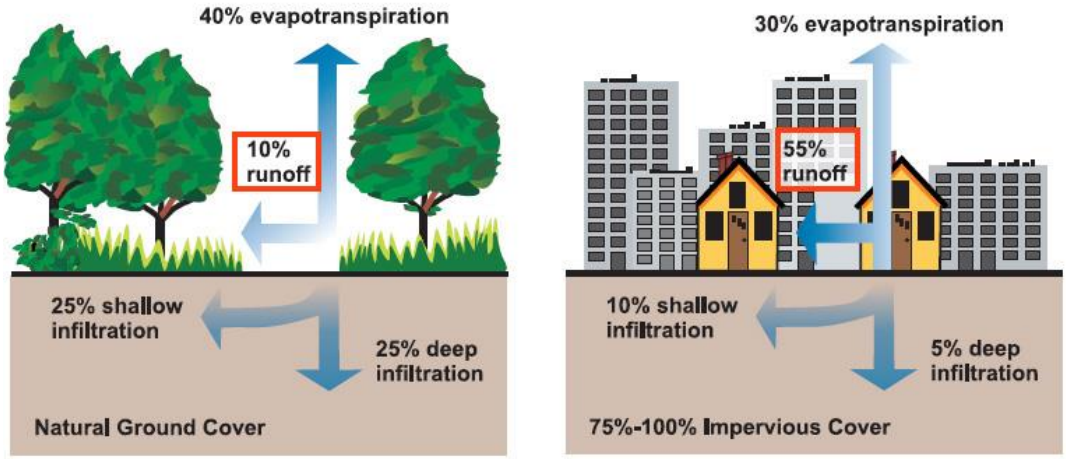

Figure 1: Relationship between impervious surfaces and runoff amounts. With natural ground cover (left), only 10% of the water is considered stormwater runoff. With 75-100% impervious cover (right), about 55% of the water is considered runoff (EPA, 2003).

Nonpoint source pollution is considered to be the greatest contributor to water quality issues, and refers to any pollution sources not included in section 502(14) of the Clean Water Act, which defines point source pollution as any discernible, confined, and discrete movement or transference of pollutant discharge.

Nonpoint source pollution, therefore, includes pollution as a result of "fertilizer, herbicide, or insecticide use in agricultural and residential areas, oil or chemicals from urban areas or energy production, sediments from construction, nature, or eroding streambanks, salt and acid drainage from mines, bacteria or other wastes from livestock, pets, or septic systems, and atmospheric deposition and hydromodification" (EPA, a).

Though nonpoint source pollution has a substantial role in affecting water quality, point-source pollution, which is defined as any single, identifiable source of pollution, contributes to this issue in a variety of ways. Erie County, New York's Department of Environment and Planning describes various ways the public negatively impacts runoff quality. To begin, storm drains should not be used for dumping any sort of materials. People will often do so when trying

to get rid of small, physical objects, or liquid wastes. In addition to this, cars play a role in this problem. Residents manually washing their cars is harmful for the environment. If the cars are washed over impervious surfaces, as opposed to lawn or gravel, soap and other chemical discharges from the car washing make their way into stormwater. Alternatively, residents could go to commercial car washing centers, which ultimately recycles or treats the used water, rather than allowing it to become polluted stormwater. Similarly, residents who perform their own auto maintenance often harm the environment by dumping oil or other maintenance waste materials into storm drains or onto the ground. Spills from car leaks should be contained and not allowed to enter stormwater. Residents also have the option to return used motor oil to car repair shops, which often accept up to five gallons per resident daily. From here, the shops dispose of the oil professionally.

Lawn and yard maintenance can contribute to water quality issues. Lawn and water chemicals, if applied before rain, can be carried from where they are applied. In the same fashion, over-watering lawns or gardens creates water runoff as the water begins to pool, also posing risks for transferring chemicals. Pools and fountains are often drained into storm drains; as the chlorine in these waters is a pollutant, water should be tested for zero residual chlorine before being drained in a landscaped area, rather than a storm drain or poured over pavement. Excessive ice melt use by residents adds to stormwater pollutant loads. Pet wastes, when not picked up and bagged for disposal, allow bacteria to wash into waterbodies and sewer systems.

2.1.2 Environmental Impacts

Stormwater poses multiple environmental risks. The most direct of these is the impact that stormwater has on water quality, as runoff carries the pollutants it contains into waterbodies such as streams, lakes, rivers, or coastal waters (EPA, 2018b). The pollutants associated with negatively impacting their receiving waterbodies fall under the following categories:

(1) Solids
(2) Oxygen-demanding substances

(3) Nitrogen and phosphorus
(4) Pathogens or bacteria
(5) Petroleum hydrocarbons
(6) Metals
(7) Synthetic organics (EPA, 2015b)

The impact on water quality, in addition to changes in waterbody hydrology, work together to change the habitats that exist in the affected waters. At times, these habitats may be completely destroyed. This issue is more pronounced in wetlands, though it poses risks to all aquatic ecosystems (EPA, 2018b). Furthermore, the unnaturally high pollutant levels in stormwater often join forces with high flow velocities and erosion to contribute to the harm of ecosystems. Alteration of riparian areas (the banks of land along waterbodies) and stormwater runoff sedimentation have caused partial destruction or entire loss of habitats and reductions in both the number and diversity of fish and macroinvertebrates (EPA, 2015b).

Stormwater is associated with increased flooding (EPA, 2018b). Heavy rainfalls have become more frequent and intense in the last 50 years. As the problem of global warming continues, these rainfalls are projected to become more frequent and intense. As a result, localized and riverine flooding will become recurrent issues.

Separate sewers collect municipal wastewaters and surface runoff from stormwater, and work to prevent sewer system overflow. Combined sewers are a larger pipe network which carries stormwater from households to treatment facilities (Stauffer & Spuhler, 2018). Localized flooding occurs when the volume of stormwater, which cannot be absorbed by the ground, inundates these pipe systems. Alternatively, water may also begin to collect in streets or cause floods in the basements of buildings. Riverine flooding occurs when the volume of water in the river exceeds the overall capacity of the channel, forcing the excess water out of the river (EPA, 2016).

2.1.3 Social Impacts

Stormwater has a variety of social impacts, ranging from public health, recreation, and aesthetic issues. Managing stormwater is conducive to protecting public health (EPA, 2018b). According to "Public Health Effects of Inadequately Managed Stormwater", there were 123 outbreaks of waterborne illness in 30 states between 1991 and 2000. All of these outbreaks were subsequently determined to involve acute gastrointestinal illness. As of 2003, at least 5,529 waterbodies in the United States are contaminated with pathogens known to cause such effects.

Since 1948, over 50% of all waterborne illness outbreaks have followed significant rainfalls. There are currently an estimated 99 million cases of acute gastrointestinal illness annually in the U.S. Within these, 6% to 40% may be a result of drinking contaminated water. This implies that the stormwater runoff generated by these storms can be directly linked to these illnesses. Waterborne diseases are especially dangerous to immunocompromised individuals. This group includes pregnant women, children, and the elderly, and makes up about 20% of the total U.S. population. Outbreaks of cryptosporidiosis in 1993 and 1994, a parasite often found in unfiltered water, were responsible for at least 70 deaths among immunocompromised people. Thus, a considerable percentage of the populace faces heightened risks in the case of waterborne illness (Gaffield et al., 2003).

Preventing public health issues that arise due to stormwater would save the U.S. a tremendous amount of money. The 99 million annual cases of acute gastrointestinal illness alone is estimated to cost about 136 billion dollars, comparable to the long-term financial investment necessary for improving drinking water treatment and stormwater management (Gaffield et al., 2003).

Increased traffic volume as a result of urbanization has resulted in higher concentrations of polyaromatic hydrocarbons, known human carcinogens, which are now also found in urban waterbody sediments. Alongside these hydrocarbons, urban waterbodies also contain insecticides in both their sediments and their fish. The possibility of people ingesting either water or fish with insecticides raises concerns regarding potential carcinogenic effects in humans, as well as disruption of hormonal systems in the body (Gaffield et al., 2003).

Nitrogen in drinking water is associated with an increased risk for methemoglobinemia and miscarriage. Additionally, stormwater runoff from paved areas in suburban and urban regions often includes significant amounts of cadmium, copper, lead, nickel, chromium, and zinc. In urban areas, major contributors to heavy metals in stormwater include car exhaust, road asphalt, fuel combustion, and tires. There are specific sources behind each element: for example, copper originates from braking and zinc from tire wear. Additionally, these elements can be found in the local waterbodies that the stormwater enters (Gaffield et al., 2003).

Heavy metals pose risks to human health. Only the health effects of cadmium and lead will be discussed to emphasize the harm of heavy metals as a whole. Jaishankar et al. (2014) provide an in-depth analysis of the adverse health effects of many heavy metals. Cadmium accumulates in the human body without degradation throughout life. There is a risk for hepatotoxicity (liver damage) and nephrotoxicity (kidney damage), through accumulation in renal tissue. Cadmium may also lead to iron deficiency.

Lead is widely known to be a toxin to humans. Lead poisoning can also come from drinking contaminated water. It is a known carcinogen and tends to deposit itself in skeletal bones. The main sources of lead which exist today are domestic (i.e. household dusts, cosmetics, toys, paints, etc.), but also environmental, which includes stormwater runoff containing these heavy metals (Jaishankar et al., 2014).

The overarching problem regarding heavy metals in stormwater is the difficulties in their removal. Removal of these elements is necessary, as they do not degrade. The maximum removal rates of heavy metals, through a variety of methods, yields a 95% to 100% decrease in element concentrations. There is no single method or filter material capable of effectively removing all metals at once or with equal success; therefore, removal of heavy metals is a challenging and tedious process. Ultimately, prevention of heavy metals contaminating stormwater may be more effective than their removal in terms of protecting public health (Reddy et al., 2013).

Stormwater runoff often contains bacteria or disease-causing organisms which make their way into water supplies, fishing, and recreational areas. An example of such a scenario is the

bacterial contamination of shellfish beds. The shellfish beds may cause foodborne illness before shutting down, harming the fishing industry or local economies (EPA, 2015b).

Stormwater also has social impacts due to the aesthetic issues it may cause. Some of the pollutants carried in stormwater are visible pieces of debris or litter that can be seen floating in water or beaches. In turn, the public's view of these "dirty" waterbodies deteriorates. The recreational value of such waterbodies is also harmed. Beaches may close down due to contamination by stormwater runoff, which hurts the public's quality of life and impedes economic development (EPA, 2015b).

2.1.4 Think Blue Maine Campaign

According to Kerry Reed of the Central Massachusetts Regional Stormwater Coalition, a project sponsor, Think Blue Massachusetts is basing their procedure on Think Blue Maine (Kerry Reed, 2019). This connection is also visible in the fact that the Think Blue Massachusetts links directly to the Think Blue Maine website on some of its web pages (Think Blue Massachusetts, b), and both campaigns use the same video advertisement featuring rubber ducks representing stormwater pollution. This campaign, much like Think Blue Massachusetts, seeks to raise awareness of stormwater pollution by raising awareness on how pollution makes its way into larger bodies of water via stormwater (Think Blue Maine, a). In addition to this, Think Blue Maine also offers tips for homeowners to prevent them from contributing to stormwater pollution and provides printable outreach materials so that communities can raise awareness of stormwater pollution on their own. In their latest push, which began in 2014 and is ongoing, Think Blue Maine is primarily targeting college educated residents between the ages of 35 and 55 (Fulcher, 2014). In order to best target this demographic, Think Blue Maine is using television advertisements on news, sports, and home improvement channels, and they are using web advertisements on news and outdoor activity websites (Fulcher, 2014). All of these advertisements direct people to the Think Blue Maine website (see Figure 2) so that they can find out more information.

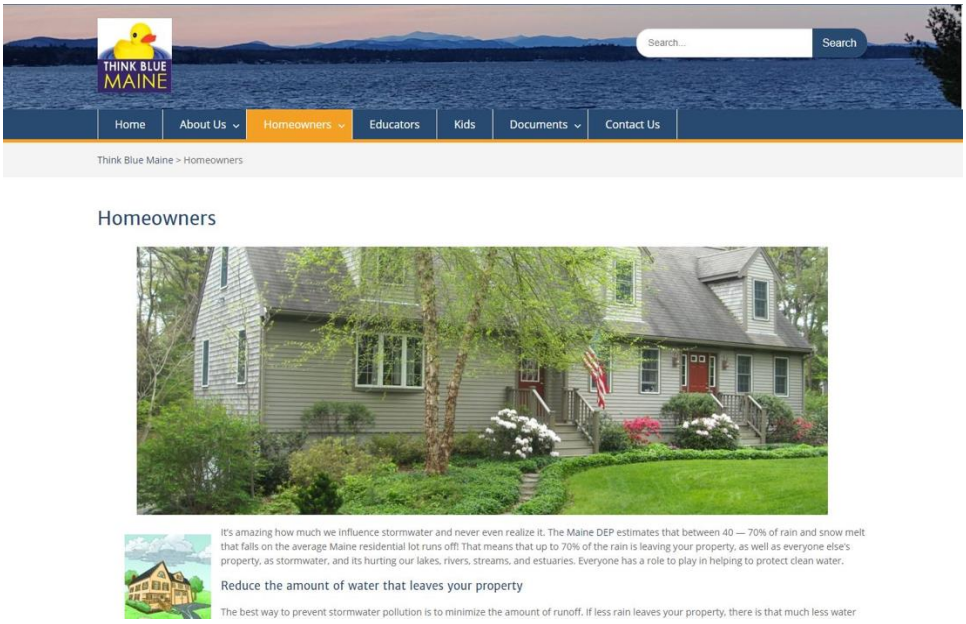

Figure 2: Think Blue Maine webpage (Think Blue Maine, b).

2.2 Federal Stormwater Regulations

There have been a number of governmental efforts to reduce stormwater pollution and its effects. The Clean Water Act (CWA) was established to regulate the discharge of pollutants in order to protect U.S. waterbody quality (EPA, 2013). The National Pollutant Discharge Elimination System (NPDES) is the permit required for towns to discharge such waters. Additionally, they must adhere to a set of water quality standards (EPA, 2018b). The Municipal Separate Storm Sewer Systems (MS4) permit requires its communities to implement educational programs, which are focused on raising stormwater awareness. The DEP also plays a role in regulating discharges (EPA, 2015).

2.2.1 The Clean Water Act

The Federal Water Pollution Control Act of 1948 was the first major US law to deal with water pollution. Public awareness spiked in the following years as concern grew regarding how the US would keep its waters clean (EPA, 2013). This CWA "established the basic structure for

regulating pollutant discharges into the waters of the United States" (US EPA, 2013). The amendment also gave the EPA authority to implement pollution control programs, such as wastewater standards for industry requirements to set water quality standards and construction of sewage treatment plants (EPA, 2018b).

The new regulations implemented through the CWA prohibits the discharge of pollutants, as mentioned in Section 2.1.1, through a "point source" into any US waterbody unless the responsible party has a NPDES permit (EPA, 2018b). There is a limit on what one can discharge, the quantity, and the quality of the designated pollutants. Navigable waters were given special attention as the likelihood of recreational use was higher. Therefore, any and all discharge into these bodies was unlawful. Point source pollution was one of the biggest concerns and was defined by the EPA as such: "any single identifiable source of pollution from which pollutants are discharged, such as a pipe, ditch, ship or factory smokestack" (US Department of Commerce, National Oceanic and Atmospheric Administration, a). Effluents, which are sewage outflow pipes from factories and sewage treatment, plants are the most common means of point source pollution and as such gain special attention from the EPA (see Figure 3: Example of an effluent).

Figure 3: Example of an effluent (USDA, n.d.).

2.2.2 National Pollutant Discharge Elimination System (NPDES)

The NPDES is a permit distributed by the United States government through a state's Department of Environmental Protection (DEP). An NPDES is a voluntary set of standards that the permit holding town must adhere to. If a town discharges any form of pollutant matter into a United States body of water, then they must hold an NPDES (EPA, 2018b). The town will determine a specific level of pollutant material, using their choice of technology, that can be dumped into any US body of water.

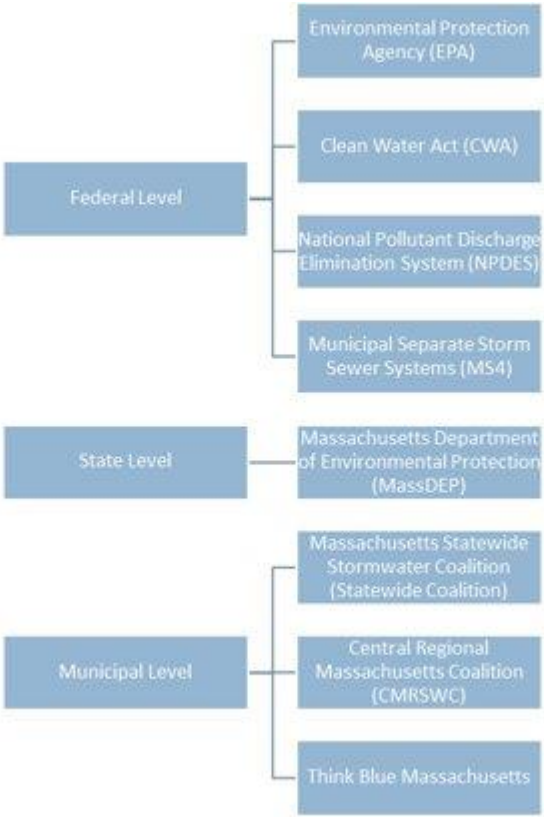

Figure 4: Government stormwater oversight.

2.2.3 Municipal Separate Storm Sewer Systems (MS4)

The MS4 permits are a "government mandated ecological commitment that the community must agree to uphold" (Think Blue Massachusetts, b). Representing a permit holding community implies responsibility for implementing educational programs to improve understanding of stormwater issues that affect the area. These educational programs must include two messages, apart by at least a year, by regulation of the EPA (Think Blue Massachusetts, b). Communities are also allowed to share material and partner with other districts on any and all material. Think Blue Massachusetts also provides material that can be used for the same purpose. Changing the behavior of residents so that less pollutants are introduced to the water is the highest priority of the MS4 (Think Blue Massachusetts, b). In that vein, it is required that progress be shown through the educational goals for specific audiences over time.

MS4 as a system is a set of rules owned by a town, community or state that regulates the discharge of waste into anything that is defined as a US body of water. Holders of the MS4 must follow a set of requirements as well, such as implementing storm drains, pipes and ditches that are not part of combined sewers, treatment plants of publicly owned treatment works (EPA, a). There are multiple communities around the United States that follow MS4 regulations (Figure 5).

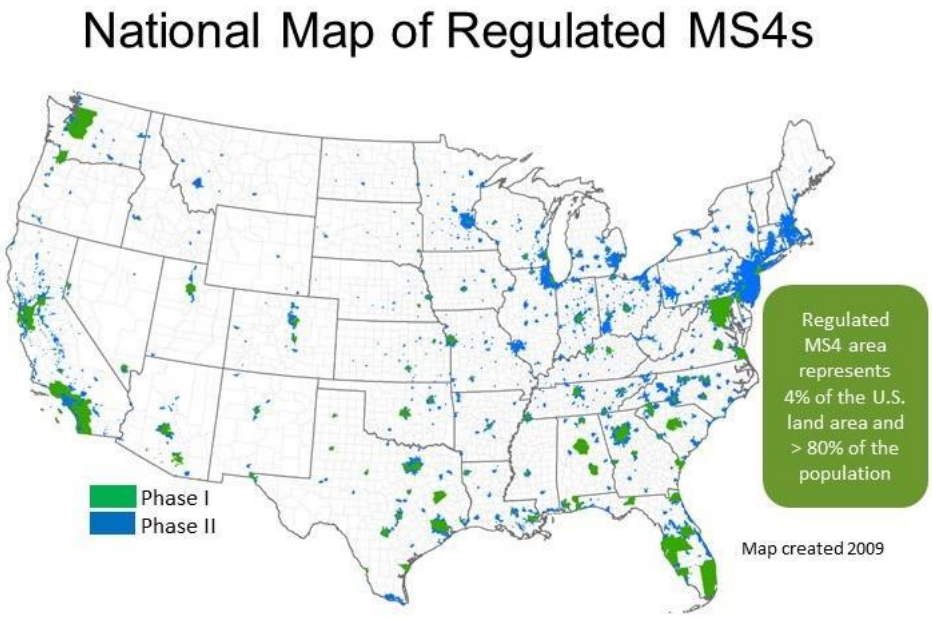

Figure 5: U.S. MS4 communities (EPA, 2015a).

There are two different phases to the MS4 that have been implemented. The first phase was implemented in 1990 and requires any large or medium cities with a population of 100,000 or greater to obtain NPDES permit coverage for sewer discharge (EPA, a). The second phase features the small MS4, which is required in all urbanized areas by the US Census Bureau. Nontraditional MS4s are also covered by phase two and include public universities, departments of transportation, hospitals and prisons (EPA, a).

2.3 State Level Organizations

In addition to the efforts of the federal government to reduce stormwater pollution, the Massachusetts state government also plays an important regulatory role. The Massachusetts Department of Environmental Protection (MassDEP) generates additional permits to reduce stormwater pollution. Moreover, the MassDEP makes sure the municipalities are following the educational aspects of the MS4 (Massachusetts Department of Environmental Protection, b). The Statewide Coalition and other regional coalitions, such as the CMRSWC, focus on educating the

public and providing stormwater awareness programs. These coalitions are either financed by the private sector or by grants offered by the MassDEP (Central Massachusetts Regional Stormwater Coalition, a).

2.3.1 Massachusetts Department of Environmental Protection (MassDEP)

The MassDEP ensures clean air, land and water by overseeing the safe management and recycling of solid and hazardous wastes and ensuring the timely cleanup of hazardous waste sites and spills. As for stormwater, they work to preserve the state's wetlands and coastal resources. More specifically, MassDEP's programs regulate wastewater discharges from treatment plants, industrial facilities, sewers and other sources. This makes sure that the water remains safe from pollutants (Massachusetts Department of Environmental Protection, a). In addition to its regulatory role, the MassDEP help people learn about federal and state stormwater permits (Massachusetts Department of Environmental Protection, b).

2.3.2 Central Massachusetts Regional Stormwater Coalition (CMRSWC)

The CMRSWC was originally formed by a group of 13 communities working together to address municipal stormwater management in 2017. The communities included in the CMRSWC can be seen below in Table 1 (Central Massachusetts Regional Stormwater Coalition, a).

CMRSWC Members List	
Original Members	New Members
Auburn	Ashland
Charlton	Fitchburg
Dudley	Framingham
Holden	Grafton
Leicester	Hopkinton
Millbury	Lunenburg
Oxford	Marlborough
	Natick
	Northbridge
	Northborough
	Palmer

Paxton Shrewsbury Spencer Sturbridge Webster West Boylston	Rutland Southborough Southbridge Sterling Upton Uxbridge Westborough

Table 1: Initial and new CMRSWC members.

Most of the member communities are subject to requirements issued by the United States EPA designed to protect water quality by reducing stormwater pollution from MS4s. As neighbors, the 30 communities share stormwater systems, surface water resources, and the need to ensure the long-term protection of these resources. Working as a group allows to collectively protect the resources, and to meet the requirements of the MS4 Permit in an efficient and cost-effective manner. The CMRSWC has also worked with the engineering consultants, Tata & Howard, Inc., Verdant Water, and other project partners since year one to develop many projects. The CMRSWC is funded by a Community Innovation Challenge Grant awarded by Massachusetts Executive Office of Administration and Finance (Central Massachusetts Regional Stormwater Coalition, a).

The CMRSWC has done many projects during their first year to reduce stormwater pollution. A couple of them touch on the public education aspect. For example, one project was to create an educational website which is designed to educate all parts of the communities on their role to reduce stormwater pollution. Similarly, another project focuses on training and providing outreach materials for town personnel and volunteers. The training materials and methods are designed to follow the educational goals of the MS4 Permit. There are individual modules that are designed for municipal personnel, elected officials form the government, and any volunteering organizations (Central Massachusetts Regional Stormwater Coalition, a).

2.3.3 Massachusetts Municipal Statewide Stormwater Coalition (Statewide Coalition)

Initially, six regional coalitions, including the CMRSWC, came together in June 2015 to form the Statewide Coalition. Subsequently, four more joined. They collaborated to achieve their shared educational goals more efficiently, which are related to community outreach and ecological protection. The CMRSWC is the organization that we will focus on the most and the one that we will be working closely with.

Figure 6 shows the location of each organization in the state. The constituent organizations are as follows (Think Blue Massachusetts, b):

1. Central MA Regional Stormwater Coalition
2. Merrimack Valley Stormwater Collaborative
3. Northern Middlesex Stormwater Collaborative
4. Neponset Stormwater Partnership
5. Connecticut River Stormwater Committee
6. Southeastern Regional Stormwater Coalition
7. Cape Cod Stormwater Coalition
8. Minuteman Advisory Group on Interlocal Coordination
9. Buzzards Bay Stormwater Collaborative
10. Charles River Stormwater Collaborative

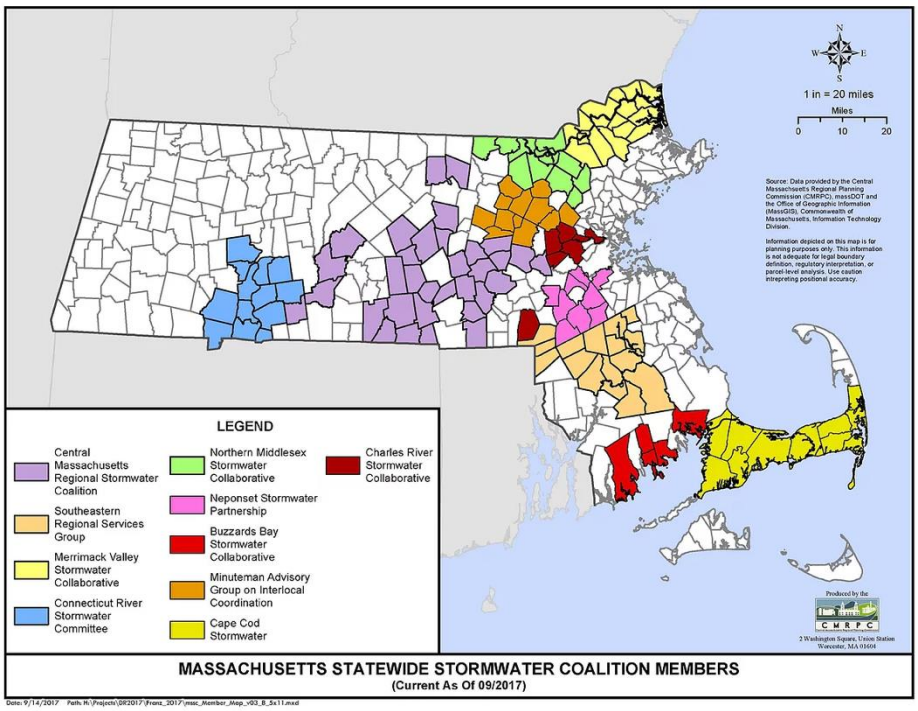

Figure 6: Massachusetts coalition members (CMRSWC, a).

2.3.4 MS4 Municipal Assistance Grant Program 2018-2019

The Statewide Coalition has applied for the MS4 Municipal Assistance Grant Program offered by the MassDEP. All Massachusetts municipalities were encouraged to apply for the grant; however, the Statewide Coalition and its partners represent close to 130 municipalities in their application. They are applying for a budget of about two hundred thousand US dollars to support the Think Blue Campaign (Central Massachusetts Regional Stormwater Coalition, a).

The overview of the 2018-2019 MS4 Grant application is that MassDEP sought proposals from groups of statewide environmental protection coalitions, municipalities, and regional planning commissions representing towns or from non-profit organizations. The MassDEP required innovative projects from municipalities that would receive the funding necessary to enable them to expand their efforts to meet MS4 requirements and reduce stormwater pollution through coordinated partnerships that emphasize resource sharing. Only projects that meet

specific requirements of the 2016 Small MS4 General Permit will be considered for funding (Central Massachusetts Regional Stormwater Coalition, a).

2.4 Think Blue Massachusetts

The Think Blue campaign is described as "a statewide educational campaign to help residents and businesses do their part to reduce polluted runoff and keep our state's lakes, rivers, and streams clean and healthy" (Think Blue Massachusetts, b). Protecting the environment and decreasing stormwater levels through changing how the populace behaves is the main goal of the campaign. In order to do this the constituent organizations have dedicated their resources to helping communities reach the standards set by the MS4. These requirements include a yearly educational program in an effort to raise awareness of methods to reduce common sources of stormwater pollution (Camero, 2018).

2.4.1 History of Think Blue

In 2017, the MassDEP issued a grant to the Statewide Coalition. With the MassDEP establishing a six month period for the money to be spent, the Statewide Coalition decided that cooperation would be the best use of the money (Kerry Reed, 2019). The Statewide Coalition looked to an already established organization on a similar scale, Think Blue Maine, for an idea on what to do with their grant. The idea was that a collaborative effort would be better at reaching out to the communities and promoting awareness. The Statewide Coalition wanted the program to be impactful and memorable, so they looked to famous environmental awareness icons like Smokey the Bear and as such based the Think Blue duck off of the idea that a mascot would make them more memorable (Kerry Reed, 2019). Finally, The Statewide Coalition decided to launch the Think Blue Massachusetts campaign.

Over the first year of its existence there has been minimal effort by the Think Blue Massachusetts organization to reach out to communities in order to spread information about stormwater. Since its foundation, there have been a number of social media posts and

advertisements in newspapers, on billboards and on websites (Kerry Reed, 2019). Community outreach events like rain gardens for elementary schools have been few and far between, despite the fact that around one hundred and thirty communities are supportive of the coalitions' efforts (Camero, 2018). As such, the primary methods of evaluating current operating effectiveness is heavily reliant on website traffic and social media views. No current method exists to evaluate how the populace of the communities has responded to these efforts. Due to the early infancy of the campaign, much of the progress has been foundational, and no large scale events have been hosted by Think Blue Massachusetts yet. There have been informational meetings run by the campaign at larger conferences and meetings that the older constituent organizations have held. Figure 7 includes a timeline of the Think Blue Massachusetts campaign.

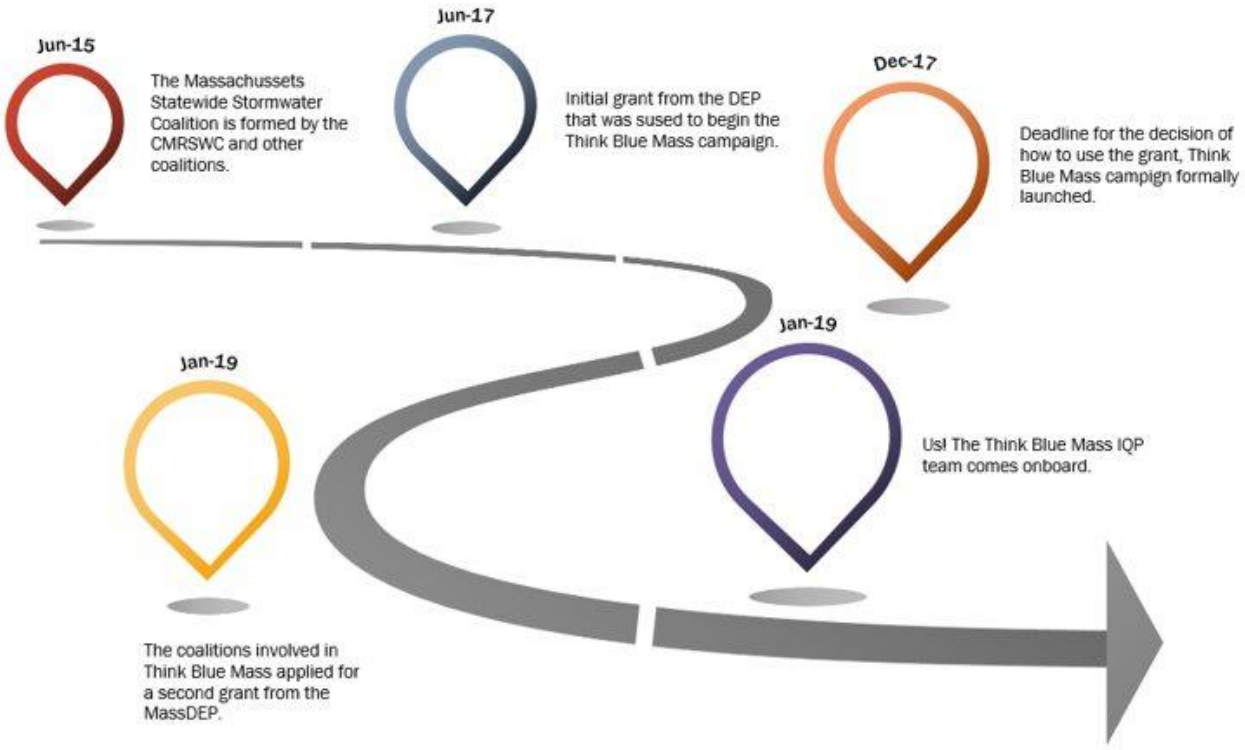

Figure 7: Timeline of the Think Blue campaign.

2.5 Public Education Methods

While educating the public on environmental issues is an important part of changing their behavior, sometimes, it is not enough to change their behavior outright. In an article in the Journal of Dairy Science, researchers found that educating the public about environmental issues was not always enough to change their behavior. Instead, it recommends that in order to more effectively change the public's behavior regarding environmental issues, it is better to engage with them directly. This allows professionals who are knowledgeable about the issues in question to more accurately educate the public in order to directly address their concerns (Hötzel, 2016). This would allow for the public to resolve more of their misconceptions about these issues, making them much better informed.

Another method of public education regarding environmental issues that has been effective is teaching children about these issues in school. Think Earth, an organization based in Los Angeles, California, has found success in educating the public on solid waste management through implementing lessons for children in school (Haworth, 2016). The program makes a curriculum about sanitation and environmental issues available online for free so that it may easily be accessed and taught to kids in schools. Even though this does not directly educate adults on these issues, the organization has found that children like to tell their parents about "something new they learned in school today" (Haworth, 2016). Through this, the program has seen success in changing public behaviors regarding solid waste management.

2.6 Social Marketing

Social marketing is a systemic tool used to "sell" ideas, attitudes, and behaviors to the public (Weinrich, 2006). The P's of marketing are specific components which play a role throughout the entirety of these campaigns (National Social Marketing Centre, 2016). Social environmental forces are typically used to determine the potential of the "place" and "people" in an area of a marketing campaign (Adams, n.d.). Social media can be an effective method of marketing a campaign. Especially if the social media platform is suitable for the right target

audience. The campaign should phrase its advertisements in a way that catches the attention of the audience and influences them to take an action (Recyclist, n.d.). There have been successful environmental social marketing campaigns in the United States before, and in order to more effectively evaluate what makes a good social marketing campaign, it is beneficial to review those campaigns. The campaigns reviewed in particular are the Smokey the Bear campaign for wildfire prevention and the Iron Eyes Cody (also known as the "crying Indian") campaign to stop littering (Ad Council, n.d.).

2.6.1 Social Marketing and Intangible Products

Social marketing focuses on the promotion of ideas, attitudes, and behaviors to consumers (Weinrich, 2006). It is an approach used to change and maintain the behavior of the public, usually in an effort to create societal benefits (National Social Marketing Centre, 2016). In lieu of physical products, social marketing may sell things like services (medical exams), practices (heart-healthy diets), or other general ideas (environmental protection). In the U.S., social marketing is used to create and spread knowledge on topics such as drug abuse and heart disease, and generate support for organ donation (Weinrich, 2006).

Social marketing is systemic and requires that decisions be made regarding which part of the public to target, what behavior to influence, and how to implement and measure change. Figure 8 provides an overview of the typical social marketing scenario, though the outcome of this particular example is health benefits.

Figure 8: Example of a health-based social marketing process (Population Services International, n.d.).

The four p's of marketing – people, price, place, promotion – are essential aspects of the planning process. Social marketing adds an additional four P's, which apply specifically to intangible products (National Social Marketing Centre, 2016). The consumer is taken into consideration when decisions regarding any social marketing P are made (Weinrich, 2006).

"People" refers to the target audience, and the necessity for them to believe a problem exists. Furthermore, the social marketing campaign must provide a feasible solution to the issue. "Price" relates to cost versus benefits; if cost (whether it be monetary or include time and effort) outweighs the perceived benefits, the value of the solution decreases. Alternatively, if the benefits outweigh the costs, the solution is more likely to be accepted. "Place", specifically in terms of intangible products, refers to the methods by which the target audience receives their information. Finally, "promotion" includes the usage of tools such as advertising, media advocacy, and public relations to increase the outreach of the social marketing campaign.

Additional social marketing P's for intangible products are publics, partnership, policy, and purse strings. "Publics" includes both external and internal publics. External publics are the target and secondary audiences, policymakers, and gatekeepers, whereas internal publics are the parties involved in approving or implementing the program. "Partnership" entails teaming up with organizations that have similar goals and finding ways to work together to more effectively reach the publics. "Policy" literally refers to the policy changes that may be required to sustain behavioral changes brought about through social marketing, which can be made easier by modifying the social environment. "Purse strings" touches on the required funding behind any social marketing program. Often, such campaigns are funded by foundations, governmental grants, or donations. The money needed to create and sustain such programs is an important aspect (National Social Marketing Centre, 2016).

In accordance of the social marketing P's of "People" and "Place" there is a method for determining the potential of these two parts called social environmental forces. Social environmental forces are measurable ways in which one can predict the overall effectiveness of a marketing campaign in an area or on a demographic of people (Adams, n.d.). Much like market research for business and stock, social environmental forces are an important tool in determining

the worth of performing a marketing campaign in an area. There are many different forces that can be measured (see Figure 9) but it is important to keep the focus of the specific campaign in mind, so we will be looking at three forces.

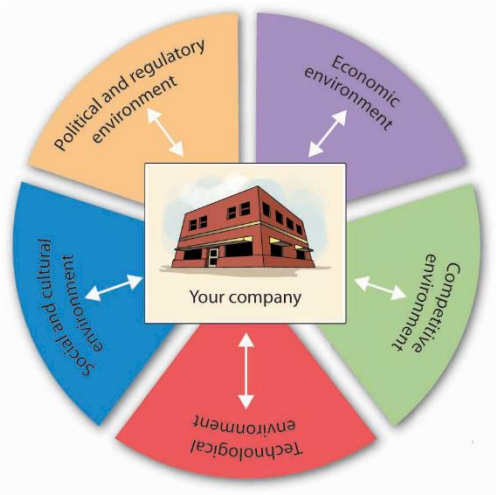

Figure 9: Examples of social environmental forces on a business (Lumen Learning, n.d.).

There are three main forces we will look at: population demographics, time consciousness and environmental consciousness (Adams, n.d.). For the purpose of the Think Blue Campaign, it would be important to consider who the marketing is targeting. Concentrating on a specific demographic, be it age, race or occupation will allow the campaign to be more effective and understand the best ways to reach those people. Of course, not all the people will listen to the message. For some people, time is very valuable and being effective with their time is important. It is hard to reach out to such a population, and even more difficult to change their behavior if it is not time efficient enough. Then, there are preexisting environmental groups that must be considered. Should an awareness campaign or foundation already exist, they may not be willing to share with a new group. Among non-profit organizations there exists competition for audiences and funding from grants, as well as brand integrity. For two groups to coexist it would be tough.

2.6.2 Social Media

Social media is one of the most important methods of communication and a great platform for advertising. Websites such as Facebook, Twitter, YouTube and others, have a lot of traffic. In 2014, a report by the marketing firm Cone Communications found that it is more likely for people to change behavior when they educate themselves through social media (Recyclist, n.d.). Moreover, they will be more inclined to participate and donate their time and money for the cause. Thus, any environmental or social campaign should have social media accounts marketing their campaign. However, it takes a lot of effort to market a campaign effectively through social media.

First of all, the campaign has to choose the social media outlet based on the target audience. Some websites are known for a specific type of audience and some are just popular in different regions of the US. The campaign should consider both of these factors. Statistics of 2018 show that Facebook is the most popular social media platform in US so it is essential to use for marketing. A close second would be YouTube and it is great platform to play short video ads such as the ducky video. Instagram is the third and mostly used by younger individuals (Lua, 2019). Some studies show that Reddit is the second most popular social media app in Massachusetts (Even-Dar Mandel, 2016).

Another tactic for improving the effectiveness of marketing the campaign, is to inspire real action. The Cone Communications study revealed a gap between intent and action (Recyclist, n.d.). For a campaign to be successful, the campaign should impact both the awareness and the behavior. The study showed that when 70 percent of survey respondents said they learned what changes they should do, only 25 percent did so in one year. One method to solve this issue is to ask for feedback from the audience, so the campaign can both improve and make the individuals feel the responsibility. The social media websites make it very easy to discuss with the audience.

Making the message meaningful and urgent helps the effectiveness of the campaign (Recyclist, n.d.). According to Cone Communications' study, survey respondents are more likely to be motivated to take action on a cause they learned about online if they believe their

participation will make an impact (79 percent), there is an urgent need for immediate support (79 percent), it is easy to participate (77 percent) and the issue is personally relevant (74 percent). The campaign should make sure to tell the audience how the actions will benefit their community and the environment. Rather than leading with a guilty prod, such as "Litter and pollution is destroying our community," boast about how much litter the cleanup event collected last year and how it protected the local environment.

Social media websites are great tools to apply all the three tactics. They can also focus the ads on a specific demographic or location. Not only that, but they can also help with assessment by providing detailed data about the response rate and suggesting improvements for a better marketing campaign.

2.7.3 Case Studies

In order to more effectively evaluate what Think Blue needs to do in regard to its social marketing campaign, it is necessary to look at other social marketing campaigns, particularly those with an environmental focus. Keeping this in mind, the first social marketing campaign looked into was the Smokey the Bear campaign, put out by the U.S. Department of Agriculture Forest Service in order to prevent wildfires. This campaign, originating late in 1944, is the longest running environmental social marketing campaign. This was not the U.S. Forest Service's first attempt at a wildfire prevention campaign, with earlier efforts either incorporating depictions of America's World War II enemies over a burning forest or using Walt Disney's Bambi to garner sympathy for the viewer (Smokey Bear, n.d.). Neither of these previous campaigns, however, proved as successful or as long lasting as the Smokey the Bear campaign. The first Smokey the Bear advertisement, released on October 10, 1944 (Figure 10), reflects several important social marketing principles. In addition to showing a recognizable mascot in Smokey the Bear, it also shows him dousing the remains of a campfire. This shows a direct action that people can take in order to prevent forest fires. The slogan, "care will prevent nine out of ten woods fires" reinforces this image, putting the onus on the reader to prevent forest fires. Later ads (Figure 11) would keep Smokey and change the slogan to "Only you can prevent forest

fires" further putting responsibility on the reader to prevent these fires. The later Smokey the Bear ads also draw similarities to older uncle Sam army recruitment ads (Figure 12), which are very well known in American culture.

Another example of environmental social marketing is the "crying Indian" anti-littering campaign put out by the Keep America Beautiful campaign in the 1970's. The goal of this campaign was to raise awareness of the environmental damage that littering causes and to convince the American public to stop littering (Ad Council, n.d.). The main push of this campaign was a television advertisement featuring a Native American man canoeing down a river which slowly becomes more polluted until he turns towards the camera at the end and sheds a tear. The main focus of this advertisement is to garner emotional responses from the viewer, both disgust at the level of pollution in the environment as well as sadness when they see the man shed a tear. Since Native Americans are typically seen as "in touch with nature" by the general public, this ad also implies that littering in and of itself is an affront against the natural world. In addition to the television advertisement, a static advertisement was also produced (Figure 13). This added another important piece of the social marketing puzzle, a call to action. The advertisement does this in two ways, the first being with the line "people start pollution, people can stop it". This reframes the issue of pollution from some massive issue that people can't make a dent in to something that people can band together and stop. The second method is by saying "get involved now", which aims to place a sense of urgency within the viewer. In addition to this message, it also offers a method by which people can get involved (becoming a community volunteer) as well as offering some contact information for Keep America Beautiful so that people can follow up and learn more.

Figure 10: First Smokey the Bear advertisement. (Smokey Bear, n.d.).

Figure 11: Later Smokey the Bear advertisement (Smokey Bear, n.d.).

Figure 12: Uncle Sam U.S. army advertisement (Smithsonian National Museum of American History, n.d.).

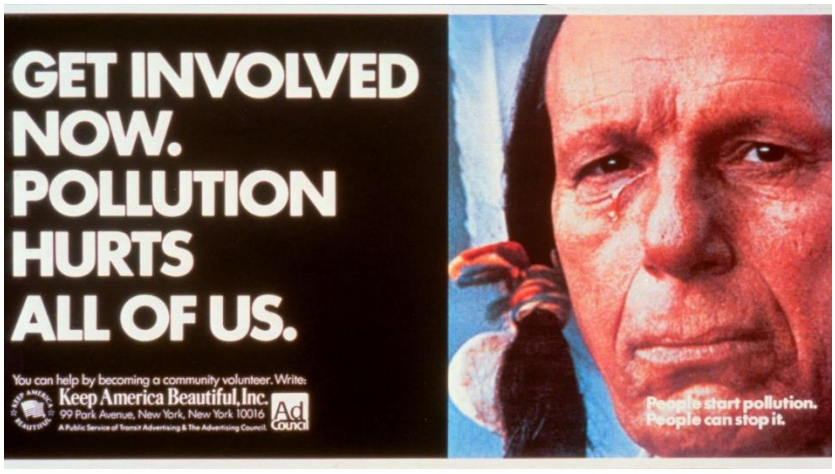

Figure 13: Keep America Beautiful "crying Indian" advertisement (Dunaway, 2017).

Chapter 3: Methodology

Our objective was to evaluate the effectiveness of the Think Blue Massachusetts campaign's social marketing aspect, develop improvement strategies, and create a social media guide to provide coalitions, towns, or individuals with the resources to utilize social media more effectively. Think Blue Massachusetts needs suggestions regarding how they will work to get their message out.

We first researched new social media platforms like Twitter and currently used platforms such as YouTube and Facebook. Our research focused on statistics such as demographics, how to conduct advertisements on each platform and the metrics each platform provides. We evaluated the current metrics of their social media postings and advertisements to determine the effect these outreach attempts have had on Impressions and Engagement. These evaluations include what the metrics mean and how a new analyst can interpret them to determine the same results we have.

We created a social marketing guide which includes a brief overview of such platforms, instructions on running advertisements, and the metrics available. One chapter in this guide is dedicated to defining key metrics and explaining their importance to make analysis easier. The purpose of this guide is to provide recommendations for outreach improvement through a more effective social media usage.

3.1 Researched Social Media Platforms

To begin, we conducted research on the social media platforms that Think Blue Massachusetts has already incorporated into their campaign and the platforms that would be a beneficial addition. The platforms that Think Blue Massachusetts is currently using are Facebook, YouTube, and their website (https://www.thinkbluemassachusetts.org). We also conducted research into the use of Twitter as a potential social media platform for Think Blue Massachusetts. We specifically conducted research into the demographics of the people who

typically use each of the social media platforms to find out how to better cater advertisements to those people.

3.2 Evaluation of Think Blue Massachusetts

To evaluate the current social media efficacy of Think Blue Massachusetts, we looked at their Facebook Analytics and Google Analytics for their website. Specifically, we looked for increased Engagement and Impressions which had occurred alongside advertisements or posts. This would indicate that these metrics were a result of such outreach methods. We analyzed those metrics and suggested improvements on the campaign to maximize their efficiency.

3.3 Expanded Think Blue's Social Media Campaign

Think Blue has been utilizing their YouTube channel, a Facebook page and website for their social media campaign so far. Though seldom active in their ten months of existence, these have been their primary tools to get stormwater awareness out to the public. Facebook is their number one focus right now due to the age range it reaches. In order to expand the Reach of their message we have added a brand new Twitter account to their list of platforms.

3.3.1 YouTube Advertisement Results

Think Blue launched a YouTube advertising campaign in May of 2018. This was performed by Eric Eckl, an independent consultant hired by Think Blue Mass. Eric updated the campaigns iconic rubber ducky video and used that as the ad. By uploading the new video to Think Blue's YouTube channel, also made by Eric, he was able to pay a flat one-time fee for the ad to run before or during other videos. We researched the level of Engagement on Think Blue's website and Facebook page for the period of time between when Eric launched the ad to when it stopped.

3.3.2 Analyzed Think Blue Massachusetts' Facebook Campaign

In May of 2018 the Think Blue Facebook page began to post stormwater awareness info graphs and videos. Their very first post was a YouTube video, a recreation of their iconic rubber ducky video. Their next couple of posts were info graphs and images designed to spread specific messages on how to fight different sources of stormwater. These initial posts and video were created by an independent contractor by the name of Water Words that Works. The Facebook page's activity slowed down significantly after the contract had ended. We have researched the demographics of Facebook users and concluded that they represent the ideal audience for Think Blue. In a guide provided to Think Blue and any other interested parties we have detailed how to run a Facebook ad campaign and the cost of such a campaign.

3.3.3 Created a Think Blue Massachusetts Twitter Account

In April 2019, a Think Blue Massachusetts Twitter page was made. Before the page was made, research into general twitter demographics was conducted to determine both the people who use Twitter as well as what they use Twitter for. Due to the page being started recently, no real demographics could be gained off of interaction from the Think Blue Massachusetts Twitter page. We researched how to advertise on Twitter via promoted tweets as well as how to track the analytics of how individual tweets perform.

3.3.4 Investigated Methods of Viewing Website Metrics

Think Blue Massachusetts created a website which coalitions, municipalities and individuals may use to access information regarding stormwater education. The website launched in May 2018 and was last updated July 2018. We gathered and looked into the metrics of the website using Google Analytics. In addition to this, we investigated the pros and cons of using Wix analytics as an alternative method for viewing website metrics.

3.4 Created a Social Marketing Guide for Think Blue Massachusetts

We created a short guide showcasing our social media findings and recommendations for use by coalitions, towns, or individuals looking to strengthen their social marketing campaign. Each chapter is comprised of a description of the platform, instructions to advertise, and the metrics that are available. One chapter in the guide focuses on becoming a vendor at fairs or festivals. Additionally, the metrics are defined and further explained.

Chapter 4: Findings

As mentioned previously, we researched social media platforms. In 4.1, we present our general findings from literature about the three pertinent social media platforms (i.e. YouTube, Facebook, Twitter) and websites. For the social media platforms, our research showcases the unique outreach opportunities and benefits that each one can provide to Think Blue Massachusetts. YouTube and Facebook are the two most internationally popular social media platforms. They allow for outreach to multiple age groups, as their highest user demographics differ (Omnicore, 2019). They offer benefits for any social media marketing campaign. Though not previously used by Think Blue Massachusetts, Twitter may also be of use to their campaign.

We researched Wix and Google Analytics as methods to collect website metrics. "Social media metric tools" refers to any service which gathers and presents a website's metrics. Wix allows users to create websites and provides limited metrics, whereas Google Analytics can be used to monitor any website and offers more in-depth metric collection tools. Finally, we have analyzed the data provided by Think Blue's Facebook page and their website through Google Analytics. In doing so we have identified their weakest and strongest metrics and have drawn conclusions regarding their campaign effectiveness.

4.1 Research on Social Media Platforms

In this section, we researched social media platforms to gain insight into their individual benefits for Think Blue Massachusetts' social marketing campaign. We determined that YouTube and Facebook have a tremendous outreach potential due to their many users. YouTube is projected to more reliably reach people aged 18 – 49 than cable television in terms of outreach efforts in the future (Omnicore, 2019). Facebook is the social media network that has the highest population of adults over the age of 30 as users (Gramlich, 2019).

4.1.1 Research on YouTube's Outreach

Since 2016, YouTube has seen tremendous growth as a social media platform. From the U.S. alone, there are 167.4 million unique monthly active users (Dogtiev, 2019). YouTube is an essential tool in marketing strategies due to its high traffic rate. YouTube's total number of users is about one billion, which is nearly 1/3 of the Internet. Amongst themselves, they generate one billion hours of video views daily. The potential outreach for YouTube channels and videos is massive (Previte, 2019).

YouTube may be a worthwhile alternative to television for multiple reasons. Currently, millennials (roughly aged 18 – 35) prefer YouTube over television. It is predicted that by 2025, 50% of viewers under 32 will not be subscribed to paid television (Omnicore, 2019). Cable is considered to be "slowly dying" (Previte, 2019). Additionally, YouTube reaches more people in the 18 – 49 age group than any cable network in the U.S. Due to its popularity over television for this age group, YouTube may be a more effective way to reach these individuals.

4.1.2 Research on Facebook's Outreach

Facebook is currently the most used social media platform for all age ranges, with 214 million unique active monthly users in the U.S. (Statista, 2019). Due to its status as the most used social media platform, Facebook is an invaluable asset when it comes to social marketing. One in five of all page views occurs on Facebook (Zephoria, 2019), meaning that much web traffic for businesses originates from Facebook. Nationally, Facebook is the social media platform most used by adults from 30 - 64 years of age, with 78% of adults from 30-49 years of age and 65% of adults from 50 - 64 years of age using Facebook (Gramlich, 2019). This large adult population that uses Facebook means that it is the best social media platform to use to advertise to adults.

4.1.3 Research on Twitter's Outreach

Twitter is a steadily growing social media platform that enables sharing short messages and starting conversations. We have found that Think Blue Massachusetts has not previously used Twitter; however, it might be a useful tool for their campaign. Twitter's highest age demographic is 18 – 29 years old, and is used by 71% of Users to read the news. It is estimated that content seen on Twitter is 31% more likely to be recalled than information found while generally browsing the Internet. Twitter also has seen a 50% increase in ad Engagements and a 14% decline in cost per Engagement between October 2017 and 2018 (Cooper, 2019). In recent years, Twitter has become an important platform for advertising and reaching young adults.

4.2 Wix and Google Analytics as a Means to Collect Website Metrics

In this section, we researched Wix and Google Analytics, which offer a variety of metrics that can be used by Think Blue Massachusetts to monitor their website's activity. Wix offers tools both for free and at a price to gather different analytics. Spending money allows for more in-depth metrics about the website to be collected. Google Analytics provides a free service that enables more descriptive and comprehensive tracking. It also works as a platform which can monitor multiple websites or applications simultaneously. The metrics offered by both Wix and Google Analytics reflect an organization's progress.

4.2.1 Wix Metric Collection Tools

Wix offers a suite of built in tools to gather analytics on a website such as Think Blue's. The basic metric gathering software can be gathered by accessing the "Tracking and Analytics" option on the settings tab in the site's dashboard. This allows data about the site's traffic and user interaction with the website to be gathered (Wix, 2019a). Another method of viewing how many people visited a website can be found under the "Blog manager" menu. This only allows the user to see how many people have visited the site, but the time period that the data is shown for can be changed to be for the previous week, the last three months, or for the past year.

In addition to the tools that Wix provides built into the website, there exist a number of apps on the Wix app market that can be used to find even more site metrics. The best app found for this purpose is the "Visitor Analytics" app. In addition to the previously discussed metrics that Wix can find, the Visitor Analytics app can track users' IPs, identify where users are viewing the page from, what the most popular pages on the site are, find out what sites are most referring people to the website, and find out when the website gets the most traffic (see Figure 14). However, this app must be purchased in order to use it for a website (Wix, 2019b).

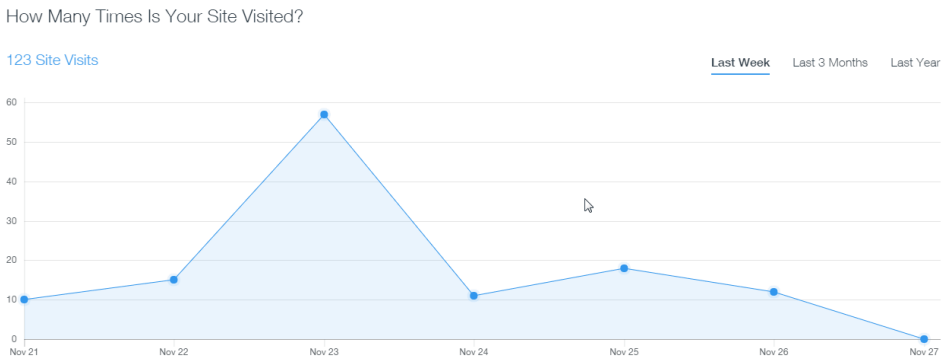

Figure 14: Example of the number of visitors graph provided by Wix Analytics (Wix, 2019b).

4.2.2 Google Analytics Metric Collection Tools

Google Analytics is an important tool for any website, social media account or application. It provides different metrics that show various types of User Engagement with the website. These analytics can then be used to see which areas of the website are effective and which areas need improvement. Google Analytics is free and can be linked to 50 different properties, which can be either websites or applications (Google Support, 2019). Google Analytics track the website by installing a tracking code to each page of the website that runs on the viewer page so that every time a viewer visits the page it gathers basic information about the visit. The code also sets a cookie on the user's computer to create an anonymous user ID for more specific metrics (Shivar, 2018).

After setting up the account and linking it to a property, the general metrics can be shown in the home page of Google Analytics. These general metrics include different dimensions such as, All Users, New Users, Users by city or region, View Time of the website and many others. On the homepage, the left-side tab has three categories of data: Acquisition, Behavior and Conversions (Shivar, 2018). The acquisition tab is very important when it comes to analyzing which channels were the most effective in directing visitors to the site. The behavior tab shows what the visitors did while on the website. It shows which page has the most visits, what the average time spent on each page is and other similar metrics.

4.3 Analysis of Think Blue Massachusetts' Website Metrics using Google Analytics

In this section we analyzed Think Blue's metrics using Google Analytics (Google Analytics, 2018) to determine the effectiveness of the website. In consultation with our sponsors we narrowed down all the metrics to the most wanted one: reach. More metrics will become more important as the campaign continues and more people are brought on but for now we will focus on the total amount of people who have seen Think Blue's material. There are multiple ways to determine this, with Reach being the most basic; however, it does not cover all social media outlets. As such, the metrics of Total Users, Impressions and Engagement will be used instead.

4.3.1 Total Users Of Think Blue Massachusetts' Website

Using Google Analytics to find the Total Users for the past year requires the use of the pie chart below and to the right of the initial line graph. Google Analytics has two important metrics to determine the Total User base, which are Returning and New Users. For Think Blue has more New Users than Returning Users. This nets a Total Users base of 3,998 since May 1st, 2018 (see Figure 15). This graph shows that Think Blue's website has increased user traffic after they advertised.

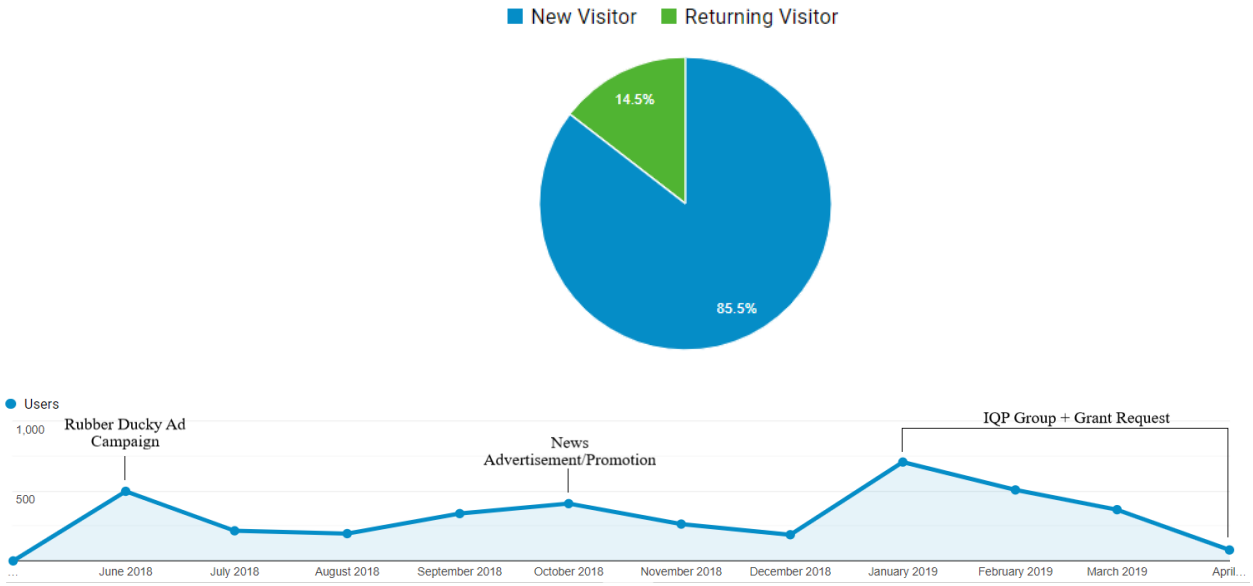

Figure 15: Monthly Users May 2018 - April 2019.

4.3.2 Impressions through Unique Pageviews

Impressions are Interactions with the website, or the number of times people have opened new pages and gone onto the site's home page. Unique Pageviews is a count of the number of times a page is viewed by users every time they load or reload a page. For the Think Blue website there has been a total of 11,250 Unique Pageviews from its creation to April 11th, 2019. (see Figure 16). Correlating spikes in Pageviews to specific events or activities, most notably paid advertising, will assist Think Blue in determining what is effective in increasing outreach.

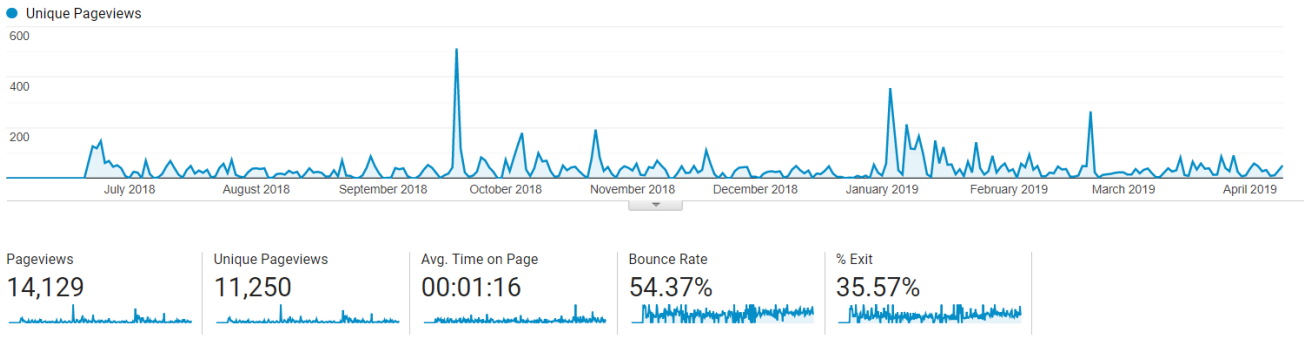

Figure 16: Pageviews and average time on page from May 2018 – April 2019.

4.3.3 Engagement through View Time

Engagement measures the total interaction time for the website. For social media posts, clicks and views are the primary measurement for Engagement. Websites allow for monitoring View Time, the total time that a user will spend on a page on average. Think Blue Mass's average View Time during their first year (May 2018 – April 2019) was 1 minute and 16 seconds (Figure 16). The average View Time on a website is 3 minutes and 17 seconds (Borden, 2018). Think Blue's average View Time is relatively low in comparison, so they should aim to keep viewers more engaged in their website.

4.3.4 Analysis of Think Blue Massachusetts' Bounce Rate

Bounce Rate is a measure of the percentage of users that view a single page on a website and then immediately leave. Average Bounce Rates for websites hover between 55% and 44%. Think Blue's website has a Bounce Rate of 55% (Figure 16) which is on the higher end of the average; however, Think Blue is an outreach campaign that is dedicated to getting its message out to the maximum amount of people possible. Due to this, even an average Bounce Rate may be too high. For the campaign to succeed, it should minimize such a mass loss of viewership on its own website.

4.4 Think Blue Massachusetts' Facebook Metrics

In this section, we analyzed Think Blue's Facebook Insights (Figure 17) metrics which summarize the page's activity. The page was created on June 15, 2018. Figure 18 shows an overview of Think Blue's Facebook page summary.

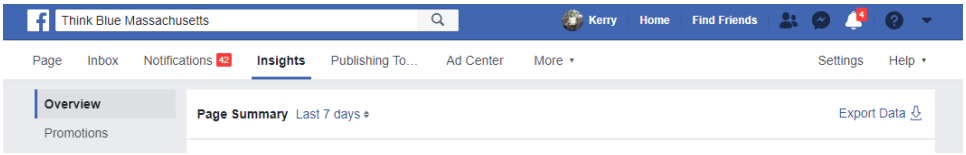

Figure 17: Showing "Insights" tab on Facebook.

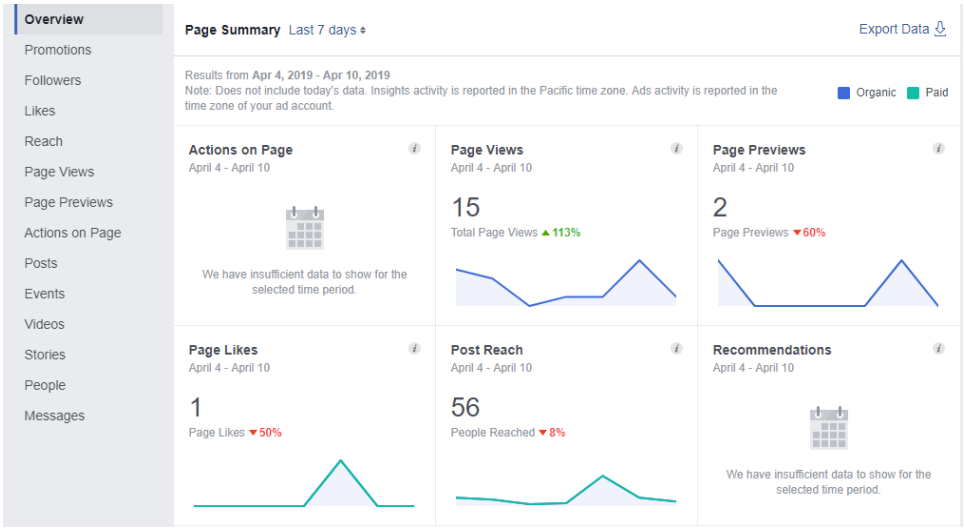

Figure 18: Overview page on Facebook.

4.4.1 Facebook Post Reach

Throughout the entirety of the page's timeline (June 15, 2018 – current), there have been only four users that clicked on Think Blue's website link. From June 15 to June 27, 2018, Think Blue's Facebook amassed nearly 600,000 people who had any Think Blue content appear on their screens as paid Post Reach. Their Organic Reach has been minimal following the end of the

paid Post Reach, with most months averaging about 100 people through Organic Reach (Figure 19). These metrics show that advertisements on Facebook drastically increased Think Blue's Reach.

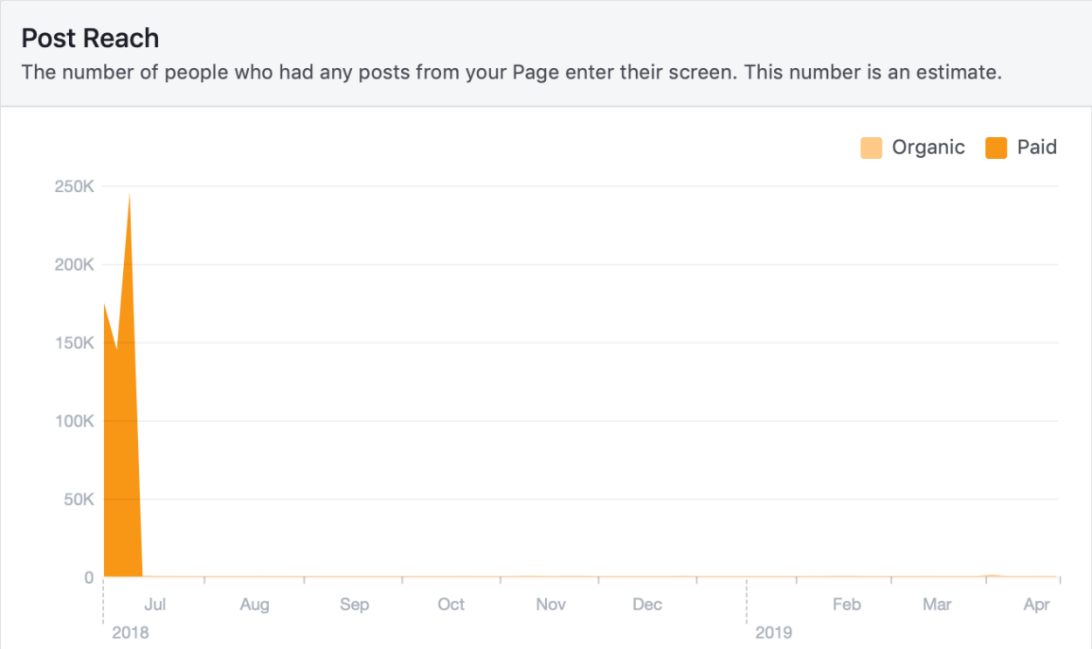

Figure 19: Think Blue Massachusetts' Facebook Post Reach.

4.4.2 Facebook Page Likes

Think Blue's Facebook page started with 35 Page Likes in June 2018 and has increased to 75 Page Likes as of today (Figure 20). Likes have increased sporadically over the last year, with the biggest jump of four Page Likes occurring on October 5, 2018. On other days where Page Likes occurred, it was usually just one. These Page Likes occurred on the Think Blue Facebook page, but some also occurred when people either searched for Think Blue or when it showed up in their news feed.

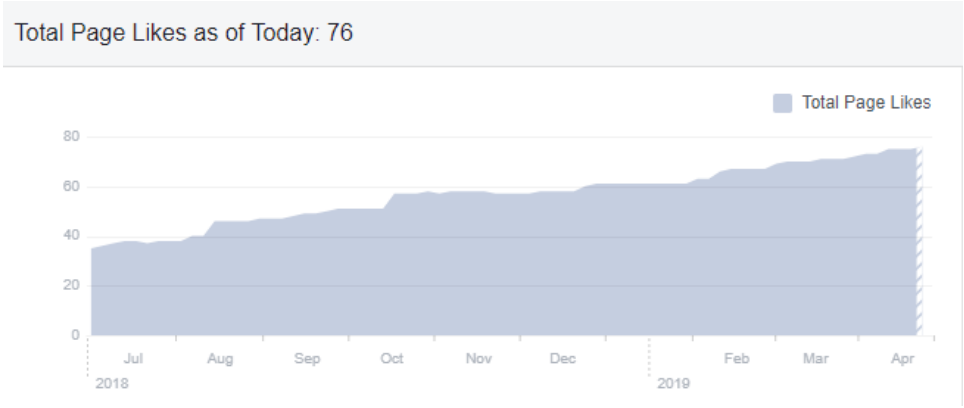

Figure 20: Think Blue Massachusetts' total Facebook Page Likes.

4.4.3 Total Followers and Growth

Think Blue's Facebook page has had a relatively steady increase in Followers since its creation. The majority of these follows occurred directly on the Facebook page, and a few occurred from the search function. All follows have been organic, meaning that they were not paid for (Figure 21). This steady growth in Followers is a positive statistic for Think Blue.

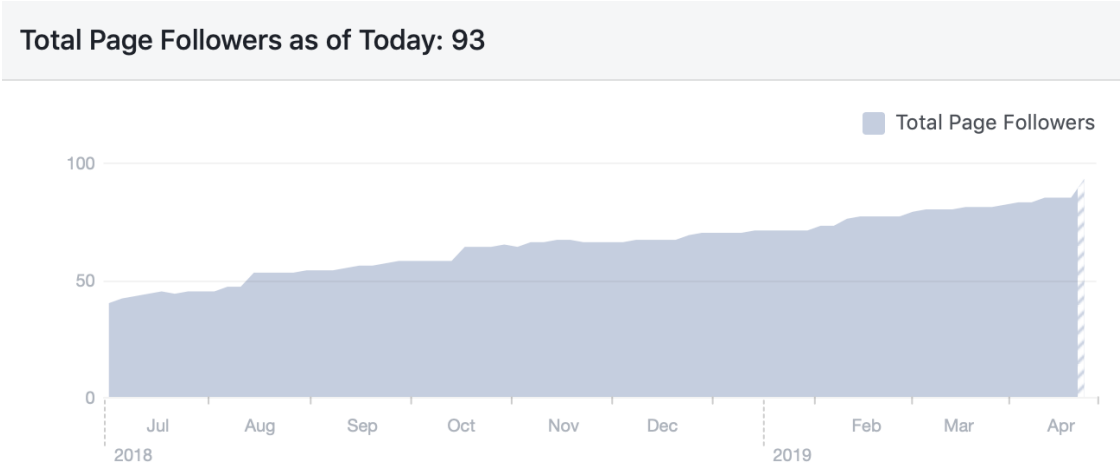

Figure 21: Think Blue's Facebook Followers growth.

4.4.4 Unique and Total Page Views

Counts of people who viewed Think Blue page crested in June 2018 with 12 people viewing the page in one day (Figure 22). The highest number of Page Visits was 14 in one day (Figure 23). After June, there was a sharp decline in Page Viewership followed by a plateau at the level that the Page Views declined to. Page Previews (when someone hovers over a page but doesn't click on it) for the Think Blue Facebook page began on March 13. Page Previews have been constant except for late March, where Page Previews peaked at four for one day. However, on all days where a Preview was seen, it was only by one person (even on the day with 4 Previews).

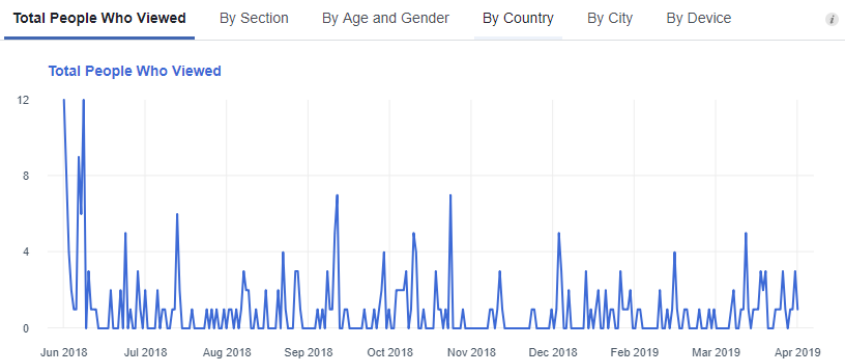

Figure 22: Think Blue Massachusetts' unique Facebook Page Views.

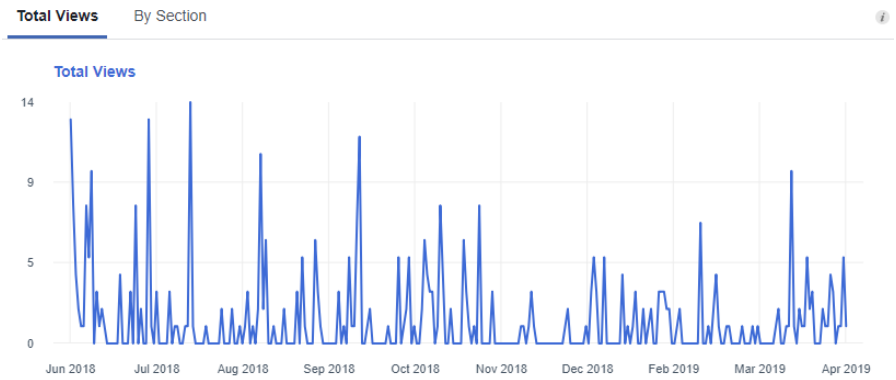

Figure 23: Think Blue Massachusetts' total Facebook Page Views.

4.4.5 Average Daily Activity of Think Blue's Facebook Followers

The majority of Think Blue's Facebook posts have a Reach of under 100 users and under 10 total Engagements (post clicks, reactions, comments, and shares). The most successful types of posts in terms of Reach and Engagement are content with photos, which has an average Reach of 196 users, and content with links, which has an average Reach of 75 users. A post's Reach is directly correlated to the amount of Engagement it receives; the higher the Reach, the more Engagement. Throughout the week, Think Blue's followers appear to be equally active and online throughout the day (8:00 AM to 9:00 PM). At any given time, approximately 30 followers are using Facebook. Given the current followers, Think Blue has no "prime time" to post content and maximize its Reach (Figure 24).

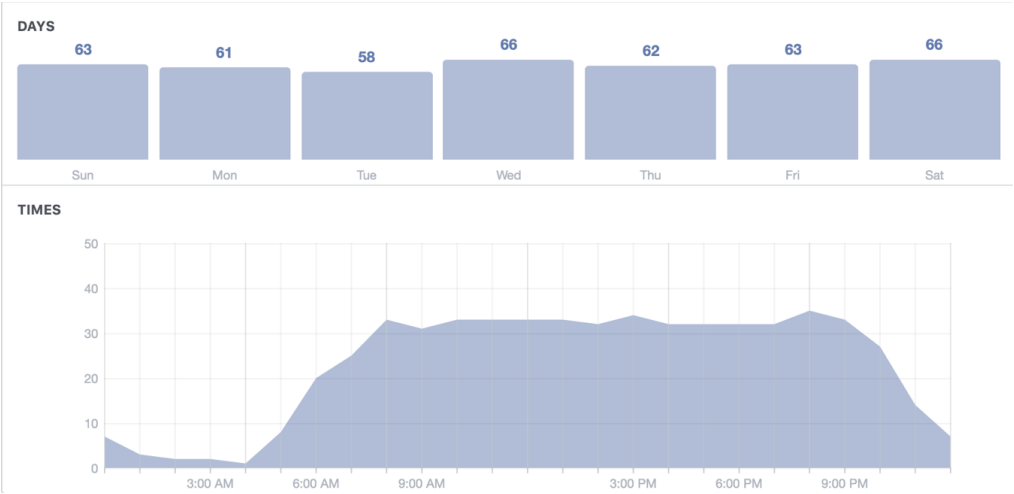

Figure 24: The average Daily Activity of Think Blue's Facebook followers.

4.4.6 Facebook Video Metrics

From May 16, 2018, to April 11, 2019, Think Blue's video content has been viewed for a total of 160,300 minutes, and has received 594,500 3-second video views. The majority of these views were paid and occurred from May to June 2018, and have averaged below 20 minutes viewed (Organic Views) per week since then (Figure 25). The highest performing video post was

deleted. The second highest was Think Blue's 30 second ducky ad. These metrics show that Facebook advertisements increase Think Blue's reach, and in turn, their Video Views.

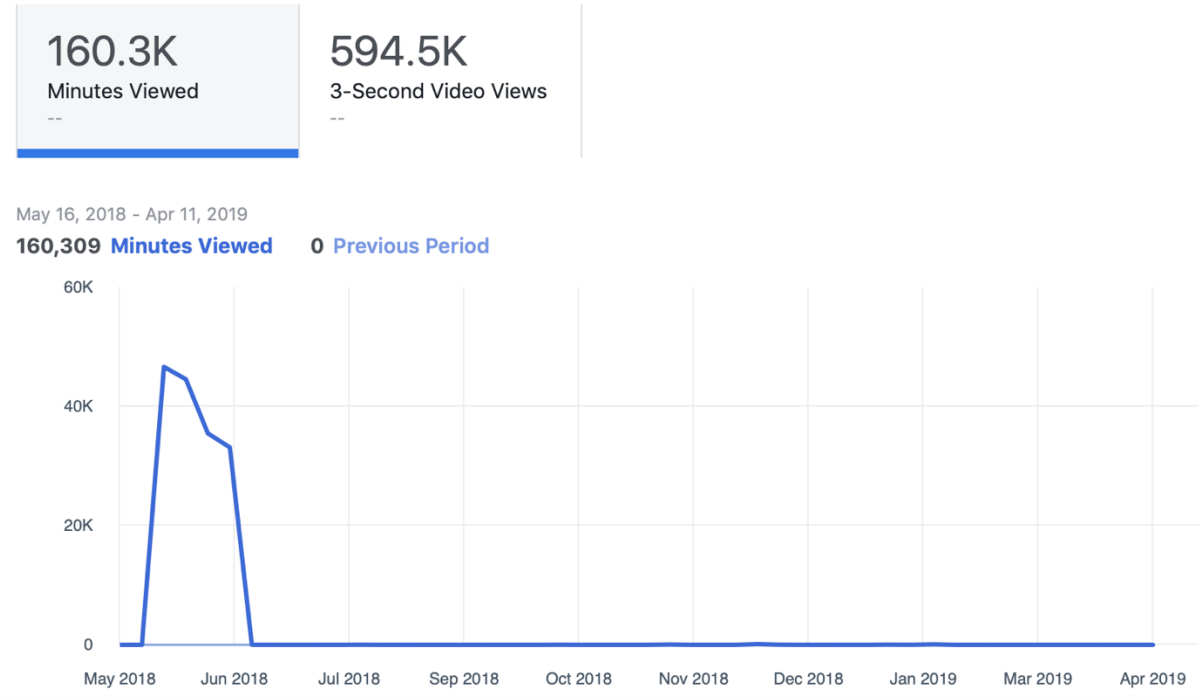

Figure 25: Think Blue's Facebook Video Metrics.

Chapter 5: Conclusion and Recommendations

For the Think Blue Massachusetts campaign, we recommend the following points of action to increase outreach. They are listed in order of priority based on their potential effectiveness, as described further in this chapter. We also created a *Think Blue Massachusetts Social Marketing Guide* (Appendix B) that works in conjunction with these recommendations by providing instructions on how to launch advertisement campaigns and view metrics. The following list is a brief preview of our recommendations, which will be further explained in the remainder of the chapter.

1. **We recommend that Think Blue Massachusetts launch advertisement campaigns on YouTube and Facebook**. Additionally, they should activate Promote Mode on Twitter, a monthly service that advertises all Tweets made during that month. Advertisements have been used by Think Blue in the past and they caused the number of Impressions and Views on Think Blue's content to greatly increase. The current need of the campaign is to increase their outreach and Views and spread their message to the new audiences. For this to work, the campaign must branch out. By using paid advertisement services provided by the respective social media platforms, Think Blue can expand their Reach and achieve their goals.
2. **Using Facebook and Twitter regularly will increase the brand's Reach and Engagement**. Maintaining a regular posting schedule shows the audience that the brand is active and genuine, and will help keep up User Engagement. There are optimal times for posting on both social media platforms, though the number of daily or weekly posts can be determined by the social media administrator. Facebook should be used to showcase information and happenings, whereas Twitter is more fast-paced and should be used to post new and concise messages. Additionally, avoid cross posting on both platforms simultaneously.
3. **We recommend that website and social media metrics be analyzed periodically to evaluate the campaign's progress.** It may be best to focus on one or two metrics to showcase their campaign performance in Steering Committee Meetings. At this time,

Think Blue Massachusetts does not need to monitor each of the hundreds of metrics currently available. The metrics most relevant to their goals are Reach, Engagement, and Impressions.

4. **Hiring an employee to manage Think Blue's social media platforms and advertisement campaigns** would make their consistent management easier. Alternatively, Think Blue can opt to hire a college student (or possibly a volunteer) for a few hours a week to maintain the campaign's social media presence.
5. **Finally, another outreach option is to become a vendor at a festival or fair.** This entails renting booth space in advance and advertising the campaign. Some of these events are known to attract thousands of people and would give Think Blue an opportunity to spread their message and social media handles.

5.1 Begin a YouTube Advertisement Campaign

For the campaign's outreach to be successful and powerful, it is recommended for Think Blue Massachusetts to advertise their messages, especially through YouTube, as explained in Chapter 4.1.1. YouTube can be a more effective method of outreach than cable advertisements because it can both reach Think Blue's suggested target demographic as well as reach out to a fresh audience who is interested in the topic. Advertisements on YouTube can be set up to run during certain times of the day and be related to certain search words in order to be more directed to an audience that has an interest in the topic. YouTube Ads may be expensive, but it is still highly recommended that Think Blue invest in them, especially in the first few years of the campaign. This is because the campaign can only cause a change in the way people act if they know that it exists. Chapter 4 of the *Think Blue Massachusetts Social Marketing Guide* in Appendix B shows detailed instructions to start a YouTube Advertisement campaign as well as suggested settings for the campaign.

5.2 Begin a Facebook Advertisement Campaign

Advertising through Facebook will allow selected posts to appear on the dashboards of people who haven't followed the Think Blue Mass Facebook page, spreading awareness of Think Blue to more people. Facebook also allows for advertisements to be targeted to very specific groups, meaning that posts for homeowners can be made to show up on their dashboards. Posts can also be targeted at those who work in construction, commercial and developmental sectors using the Audience feature which can narrow down who sees what post. Facebook Advertisements are very useful to new pages looking to get more followers and viewers, and using it will allow Think Blue to grow exponentially.

5.3 Use Google Analytics over Wix Analytics to collect Website Metrics

It is our recommendation that Google Analytics is used rather than Wix. While both offer the same tools for gathering website analytics, Google Analytics is free. In addition, Google Analytics is already set up for Think Blue Massachusetts.

5.4 Create and Maintain a Posting Schedule for Facebook and Twitter

In order to successfully maintain a presence and audience on social media it is highly recommended to have an active presence on your accounts. Recently, Think Blue Mass has increased the frequency of their posts. Regular updates on developments and current projects or reminders for seasonal stormwater prevention methods would be great content for the campaign. If the campaign dedicates itself to its Twitter then we would advise that they use it for updating followers on the plans and progress of the campaign going forward. For Facebook, the campaign should update its followers on different ways to prevent stormwater. Infographics and pictures will help immensely with the Facebook page and engaging its viewers on a regular schedule. A posting schedule may reduce the workload of any social media coordinator.

5.4.1 Post During Optimal Times on Facebook and Twitter

Sprout Social is a social media management software. According to Sprout Social's Facebook and Twitter data for their consumer Engagement with their nonprofit networks, the best time for nonprofit organizations to post on social media is Wednesday and Friday at 2 pm, followed by Monday at 9 am, Tuesday at 6 pm, Thursday at 10 am and 12 pm, and Friday at 9 am and 11 am. It is generally safe to post from 9 am to 4 pm on weekdays. Weekends (most notably Sunday) and Monday receive the least Engagement. Figure 26 provides a heat map of Facebook Engagement.

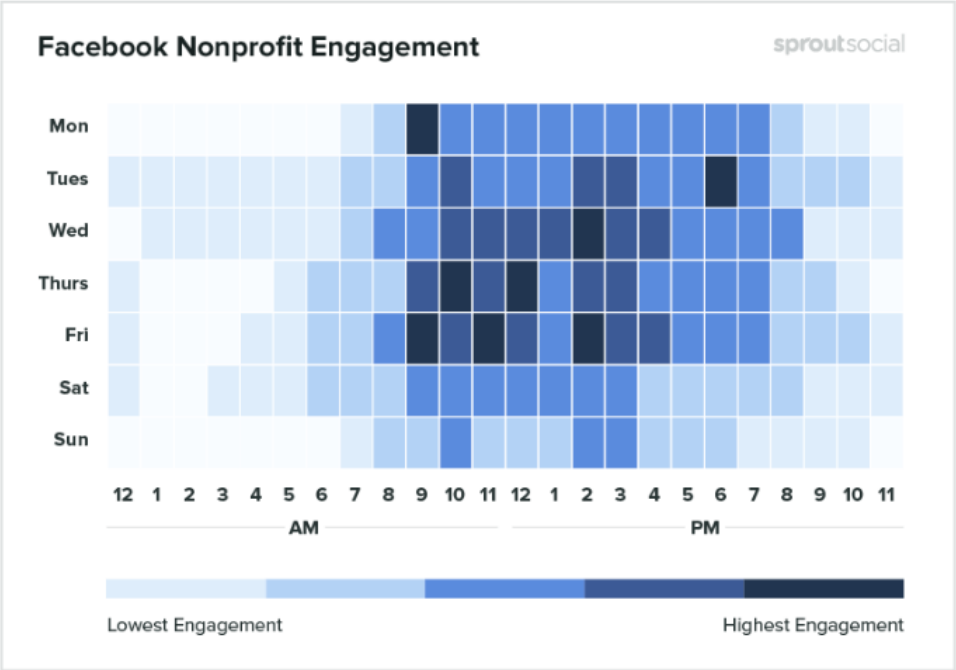

Figure 26: Facebook nonprofit organization Engagement heat map (York, 2018).

According to their Twitter data, the best time for nonprofit organizations to post on social media is Thursday at 12 pm and Friday from 11 am to 12 pm, followed by 10 am to 2 pm on Tuesday, Thursday, and Friday. It is generally safe to post from 10 am to 4 pm on weekdays.

Sunday receives the least Engagement (York, 2018). Figure 27 provides a heat map of Twitter Engagement.

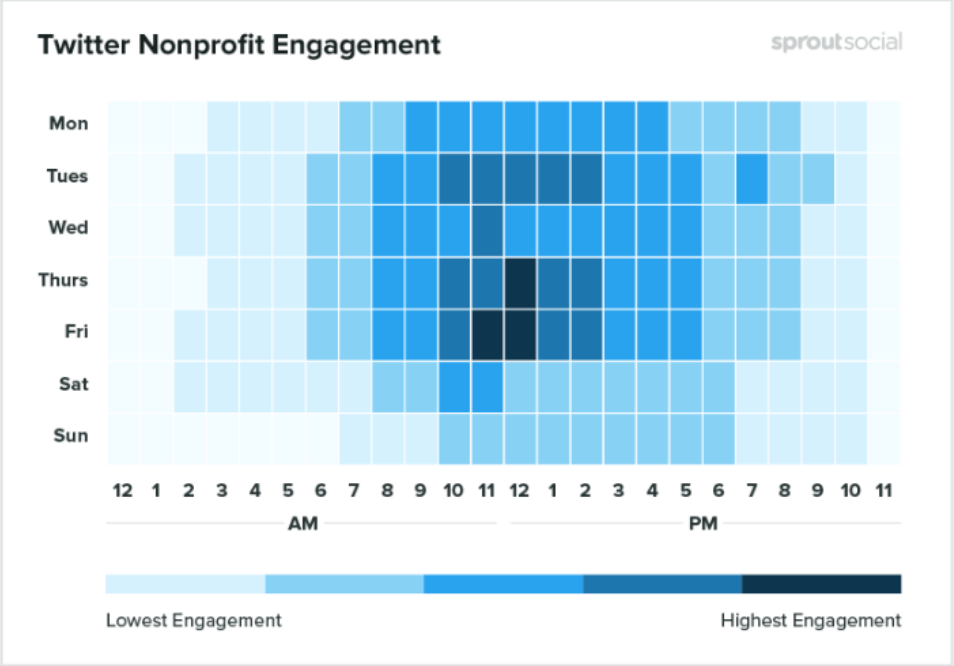

Figure 27: Twitter nonprofit organization Engagement heat map (York, 2018).

Although there are better times to post on social media, there is no specific guideline for how many times to post daily. In general, it is best to simply post on a consistent basis.

5.4.2 Use Facebook for Pushing Information

Facebook's timeline is designed to showcase past videos, images, or posts. It is best to think of Facebook as your "what's happened" platform, as its users are more likely to be in down-time than Twitter users. The information on Facebook can be tailored more for consumption rather than interaction (The Creative UX Agency, 2014).

5.4.3 Use Twitter for Audience Interaction

According to the Creative UX Agency, Twitter is a microblogging service best used to deliver concise information or messages. It is best to think of Twitter as your "what's happening" platform. As it is a fast paced social media platform, your Tweets should reflect information or events that is currently relevant (The Creative UX Agency, 2014).

5.4.4 Twitter Business's Recommendations for Compelling Tweets

Twitter Business has a variety of recommendations regarding Tweeting. The most important elements of a business's Twitter account are a regular posting schedule, making content relevant to your audience, and maintaining brand authenticity.

Twitter Business's first recommendation is that Tweets be kept concise. They are automatically limited to 140 characters and should be focused on one message, rather than multiple ideas in one Tweet. Longer messages should instead include links to websites for more information, rather than keeping the content in the Tweet.

Images, videos, and GIFs universally increase content Engagement. Twitter Business states that users are three times more likely to engage with Tweets that have videos or photos. Tweets allow for the addition of up to four photos, or one video. Running polls on Twitter or asking your audience questions can increase Engagement while simultaneously allowing you to understand their feelings or opinions.

Hashtags are a useful tool in expanding reach when used properly. Utilizing hashtags with keywords relevant to your message or organization allows for people with similar interests to find your Tweets. Twitter Business states that it is best to use no more than two hashtags per Tweet.

Finally, it is recommended to retweet similar content and to respond to your audience. Twitter Business states, "When in doubt, remember this rule of thumb: your Retweets reflect back on your business and should align with your purpose and values." Retweeting content similar to yours boosts your organization's authentic voice and social media impact.

Additionally, your audience may reach out to you through their Tweets or direct messages. Replying to these, even if just thanking a user, will increase Engagement in the long run (Twitter Business, 2019).

5.4.5 Vary Content from Platform to Platform

Though it may be easier to share the same content simultaneously on all social media platforms, it is recommended not to. Doing so incentivizes your audience to follow you on only one platform, as they would see repetitions of your content if they followed you on multiple platforms. Additionally, your audience may feel as though you are not as authentic due to the recycling of content, and thus may engage with your social media less (Cyca, 2018).

Generally, content with videos or images tends to receive more Engagements. It is recommended to use this strategy to increase Engagement, but to still vary your content so that your audience does not get bored.

5.5 Become a Vendor at a Fair or Festival

Becoming a vendor at a festival or fair is an effective method to familiarize large numbers of people with your brand. These events can attract thousands of fairgoers. The reservations for a booth are usually done through the event's website, and a deposit is sometimes required. It is important to sign up to be a vendor as soon as possible to ensure that you get a spot. In the case that there are no booths left, another option is to share a booth with a more established vendor. The more experience and time you have as a festival or fair vendor, the easier it will be to reserve space in the future (Fairs and Festivals, 2009). Fairs and festivals are opportunities for Think Blue to promote their social media accounts.

A sample of popular fairs is provided below, along with links to apply as a vendor, the dates they run, and their address.

Spencer Fair

- https://spencerfair.org/vendors.html
- Four days, end of August into September
- 48 Smithville Road
- Spencer MA, 01562

Sterling Fair

- http://sterlingfair.org/vendors/
- Two days, early September
- 121 Greenland Road
- Sterling MA, 01564

Holden Days

- https://wachusettareachamber.org/events/holden-days/
- One day, end of August
- Holden's Main Street, 01520

5.6 Conclusion

Despite being a very new program, Think Blue Massachusetts is doing important work raising public awareness of the problem of stormwater pollution. However, since it is new, Think Blue Massachusetts has room for improvement, specifically in the area of outreach. In order to help Think Blue Massachusetts reach its potential, the outreach efforts from Think Blue's first year were analyzed. In addition, suggestions were made to improve Think Blue's outreach over social media, and a guide on how to implement these suggestions was created and given to Think Blue (see Appendix B).

Appendix A: Past YouTube, Facebook, and Survey Metrics

Think Blue Massachusetts collected their outreach metrics from about June to July in 2018. Generally, their advertisements have a potential audience of 3,450,000 people (about half of the population of Massachusetts). From their YouTube efforts, the total number of individuals reached is 993,318. This translates to an outreach success of about 29% of the total potential audience. From the YouTube videos, 3,199 people visited the campaign's website. Thus, about 0.003% of the individuals reached viewed the website.

The campaign's Facebook advertising reached 1,000,209 people. The outreach success in this case is again about 29%. From Facebook, 5,250 people visited Think Blue Massachusetts' website. Similarly in the case of their YouTube advertisements, only 0.005% of individuals reached viewed the website. Think Blue Massachusetts' total advertising Impressions, however, was 5,760,785. This is significantly higher than the advertising Impressions generated on YouTube (2,284,869).

From these metrics, there is a negligible difference between their comparative successes. From here, it is important that we use cross-case study to identify methods used in similar campaigns to maximize the effectiveness of these advertisements.

Think Blue Massachusetts has conducted surveys regarding public opinion and knowledge on stormwater in relation to their educational advertisements. One particular survey, which ran from June 25 – 28, 2018, had 349 participants from across Massachusetts. Despite there only being 349 participants, there was a wide distribution of age, relationship and parental status, income, career, education, ethnicity, etc.; thus, this statistical sample is a satisfactory representation of the population (in this case, the general public).

The participants in this specific survey were asked to rank the importance of seven issues the local government deals with, indicate their agreement or disagreement with stormwater related statements, and rank the severity of specific stormwater issues. Additionally, they were asked to rate the responsibility of multiple parties in the prevention of stormwater pollution and flooding. They were then asked to view a Think Blue Massachusetts video advertisement.

An important feature of this survey is the participants' ratings of responsibility. Participants were asked to distribute 100 points amongst seven parties. Higher scores correspond to a higher degree of responsibility in the prevention of water pollution. The average score allotted to each group is given in Table A1.

	Individuals and Families	Farms and Ranches	Local/Small businesses	Corporations or Large Businesses	State/Local Gov't	Federal Gov't	Water & Wastewater Utilities
Average	10.79369	10.7908	10.3467	19.5760	16.0029	18.3352	14.1547

Table A1: Average responsibility ratings.

These results are significant in the context of Think Blue Massachusetts' goals. The highest responsibilities are associated with corporations or large businesses, the federal government, state and local governments, and water and wastewater utilities. The perceived responsibility of individuals in the prevention of stormwater issues is likely not high enough to incite change in behavior. Another troubling statistic is that only 28 of the 349 participants had reported seeing the advertisement in the last three weeks.

Appendix B: Think Blue Massachusetts Social Marketing Guide

Introduction

This guide was created by the 2019 Think Blue Massachusetts Interactive Qualifying Project (IQP) team from WPI to serve as a reference for Think Blue Massachusetts in effectively managing their social media as part of their social marketing campaign. This document is intended to work in conjunction with the team's IQP report, which is available at the link below. This guide details the process of setting up advertisements on popular social media platforms, how to retrieve metrics (including from third party tracking sites connected to a website of choice), and what metrics are the most important for an analyst to track. This document is specifically created for use by Think Blue Massachusetts but has the potential to be useful for advancing the social media efforts of other campaigns or organizations.

This guide includes a general strategy to most effectively manage social media for the purpose of outreach and brand growth. It also features step by step how-to sections which include instructions regarding how to initiate advertisement campaigns on a variety of social media platforms. Additionally, a general overview of the metrics each platform provides is given, along with how to access key metrics.

The purpose of this guide is primarily to provide a generalized method for Think Blue Massachusetts' social media management. Furthermore, it aims to help with launching advertisement campaigns on a number of social media platforms and provide a method to track and analyze the resulting metrics. Overall, the guide can be used to start up advertisements and effectively use social media as part of a social marketing campaign.

For more information, follow the links below:

Think Blue Massachusetts

https://www.thinkbluemassachusetts.org

2019 WPI Think Blue Team

https://wp.wpi.edu/wroc/evaluation-of-think-blue-massachusetts-social-marketing-campaign/

Social Media Strategy for Think Blue Massachusetts

Social media can play a large role in audience engagement if integrated into an organization's marketing or outreach campaign. It allows for a direct connection to the general public and, potentially, your target audience.

A target audience should be identified. According to Bridgett Colling, the Director of Content Marketing at See3 Communications, "A lot of nonprofits say, 'well, our audience is the general public,' but if you think you're speaking to the general public, you're probably speaking to nobody." Colling instead recommends that an audience persona is developed, which is a representation of an organization's ideal supporters based on the demographics and general information related to members of the target audience. This allows the organization to tailor their content specifically to what their target audience most likely resonates with, thus increasing their engagement and overall interest with the cause.

The target audience will partially determine which social media platforms should be focused on. Each social media varies in its demographics and is most popular with different age groups, genders, races, etc. For example, Twitter's highest age demographic is 18 – 29 years old, whereas Facebook's is 30 - 49 years old. A basic understanding of such demographics for social media platforms is necessary in determining which platform will be most useful in reaching your target audience.

Content strategy is a method of using an organization's preexisting social media posts and shares to evaluate what their audience wants to see. A big question for these strategies is "what to share"; by looking back at what got people to interact with posts and messages, an analyst can determine what the best way to approach their audience is. Another important point is to vary the content of your page, as a mix of content will always engage your audience more than repetition. The content should link back to the organization's website or information

network. The next question, "when to post", is simply answered by creating a calendar. Determining a regular schedule to post your content, including the amount of content, will help an organization stay on top of their social media efforts. Calendars can also decrease the workload of making social media posts because they can be performed beforehand.

Sprout Social collected data regarding when their customer networks, including nonprofits, were engaged with to create heat maps of engagement. Engagement charts for both Facebook and Twitter can be seen in Figures 1 and 2.

According to their Facebook data, the best time for nonprofit organizations to post on social media is Wednesday and Friday at 2 pm, followed by Monday at 9 am, Tuesday at 6 pm, Thursday at 10 am and 12 pm, and Friday at 9 am and 11 am. It is generally safe to post from 9 am to 4 pm on weekdays. Weekends (most notably Sunday) and Monday receive the least engagement (see Figure B1).

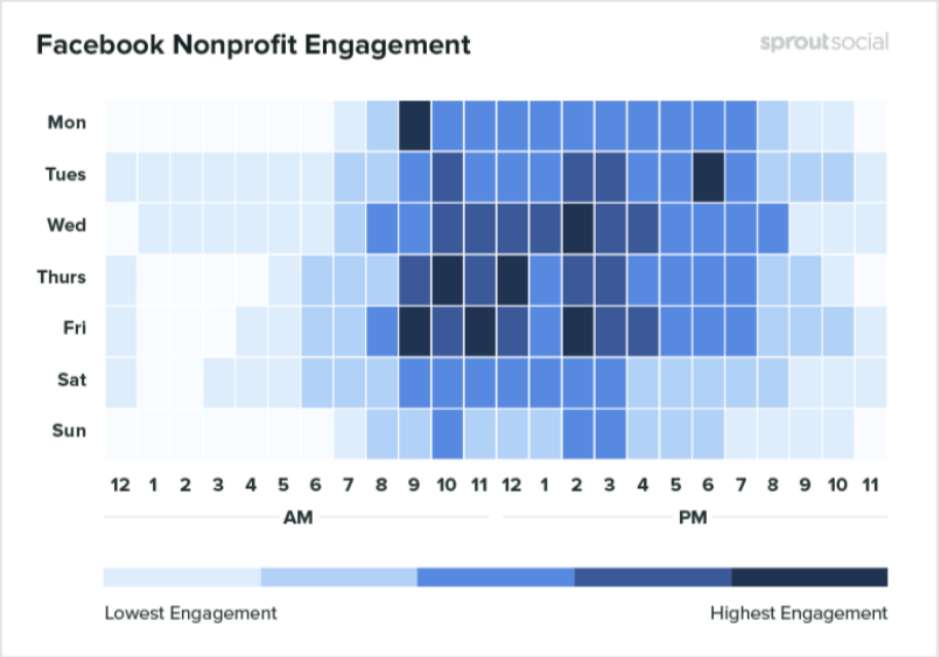

Figure B1: Facebook nonprofit organization engagement heat map.

According to their Twitter data, the best time for nonprofit organizations to post on social media is Thursday at 12 pm and Friday from 11 am to 12 pm, followed by 10 am to 2 pm on Tuesday, Thursday, and Friday. It is generally safe to post from 10 am to 4 pm on weekdays. Sunday receives the least engagement (see Figure B2).

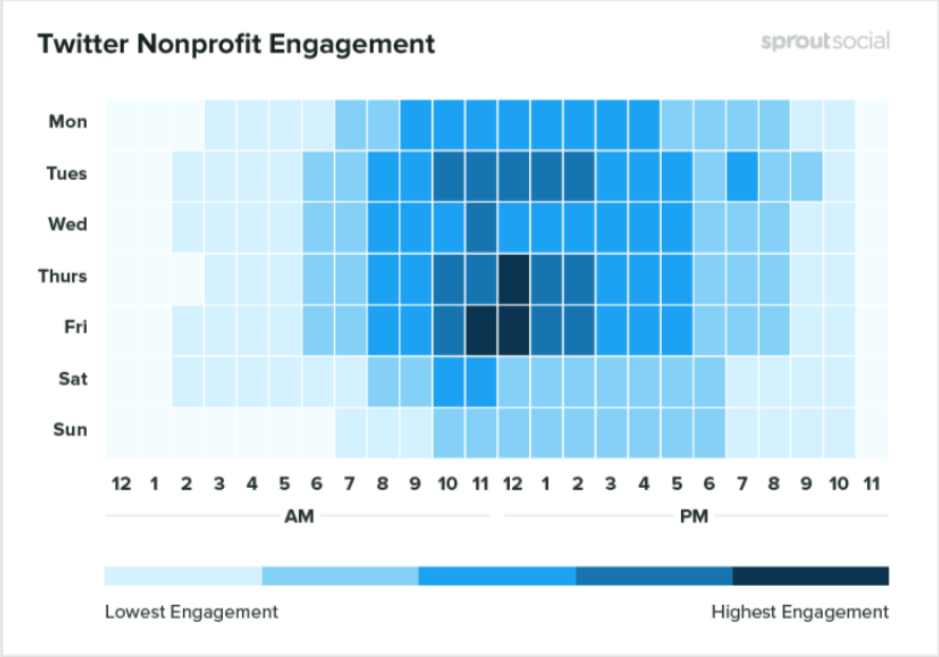

Figure B2: Twitter nonprofit organization engagement heat map.

Cross-promotion helps make the information on an organization's social media platforms as comprehensive as possible. Make means of communication such as phone numbers and emails available and include links to the organization's website or other social media platforms. In the case that an organization manages multiple platforms, create and share pre-written content that can be posted on social media platforms. Encourage your followers to share your content, which will increase your reach.

Tracking social media metrics is essential to monitoring campaign progress. The specific metrics of interest to a campaign depend on the campaign's desired goals. For example,

if the goal is engaging and educating the public, user engagement, impressions, and reach can be tracked to measure success.

Social Media Metrics

There are various metrics that can be used to measure the effectiveness of a social media page. These metrics quantitatively and qualitatively reflect the different types of activity that occur on a social media page. They are useful in assessing the success of user engagement with a social media page. Below, many different social media metrics are defined to make the task of analyzing a social media page easier.

Page and Post Likes

Page or post likes refers to the number of users who have liked your page or post. Total likes are the number of likes amassed over a certain time period. The net likes are the total likes minus the amount of unlikes. The source of these likes can be either organic, meaning that the likes occurred directly on your page or post or they may have resulted from an advertisement. Viewing likes allows for monitoring the overall growth of followers.

Reach

Reach is a measure of the total amount of people that have watched or seen your content or advertisement. Reach is particularly valuable for brand new campaigns, because it shows how many people have seen the organization's content in their feeds. In terms of advertisements, when reach is compared with impressions, you can determine the number of effective ads versus the number of ads that had no impact.

Impressions

Impressions are a measurement of the number of interactions that people have with your content or advertisements. Impressions are measured every time a user views the content or advertisement. This metric allows an organization to measure the amount of times that their message is shown.

Engagement

Engagement measures user interaction with the content or advertisements on social media. It includes likes, clicks, comments, shares, or saves (e.g. downloads). Engagement represents the audience's interest in the content and advertisements. It allows for the adjustment of new content based on what was previously well received to increase user interaction, or to bring attention to an advertisement campaign.

Amplification Rate

Amplification rate is the ratio of shares to followers. It is the rate at which your followers will share your content and represents their willingness to associate with your brand. As such, sharing the content expands a brand's reach by exposing it to new audiences without having to pay for advertisements. Amplification rate is often not automatically calculated by social media platforms. It is defined as the number of shares divided by the number of total followers multiplied by 100.

Conversion Rate

Conversion rate is the rate at which people interact with your post versus the number of people who potentially see your post. Using this number, the percentage of engaged audience members can be determined. Engaged audience members are those that feel the desire to add their voice to the poster's own, beginning a dialogue or conversation in the comments section of a post. Conversion rate is also entirely dependent on the sample size, or number of potential viewers.

Timing Metrics

Timing metrics are used to determine the peak activity hours of the website or social media page. It is important to understand what time of day draws the most attention to your content. Posting during these time frames will be more effective, and ads shown will have a higher chance of generating feedback. An analyst can determine the best time to post and reach

the maximum number of people in a short time. Timing metrics help the advertiser determine when their audience is most active and when they can expect the most feedback on their posts.

Traffic Sources

Traffic source metrics are used to measure and track the different sources of all traffic on your web page or social media. Using the traffic sources, an analyst can determine the most effective way to get generate traffic. This metric will also give an indication for which source features the highest number of "engaged views" or views by people that are curious about the ad after seeing it. Using traffic sources is valuable in getting your message across in the right places.

Click-through Rate (CTR)

Click-through rate (CTR) tracks clicks to content or advertisements, which usually redirect the user to another link (typically to a separate website). CTR, which is automatically calculated by most social media platforms, is the number of clicks divided by the number of impressions, multiplied by 100. Similar to engagement, CTR relates to user resonance and can be used to improve future content or advertisements.

Cost per Click (CPC)

Cost per Click (CPC) is the predicted cost of every click generated over the course of an ad campaign. CPC is defined as the division of the current advertisement costs by the number of clicks to determine the cost of each ad per click. A good analyst will compare the CPC of each platform to determine the maximum possible number of clicks that they can generate for their budget.

Cost per Thousand Impressions (CPM)

Cost per Thousand Impressions (CPM) is a measurement of how much it will cost to generate one thousand impressions on a website. The CPM is an important metric because it allows the advertiser to evaluate the cost of putting their ad on a website enough times that it will create a decent outreach. Knowing this an advertiser may determine the most cost effective websites to show their ads on by comparing the websites average traffic with the CPM.

Bounce Rate

Bounce rate is the number of users who arrive at individual content or websites and do not navigate away from their destination page before leaving. A higher bounce rate indicates a greater occurrence of this. This is sometimes due to an accidental click but is more often because there is little value in the content or site for the user. Bounce rate is available for multiple traffic sources, which can be compared to determine which source is effective at lowering the rate.

Watch Time

Watch time is the total number of minutes that viewers have spent watching a video. YouTube allows for the monitoring of an individual video's watch time and for a channel's cumulative watch time. The videos on a channel can be ranked by their watch times so that it can be determined what kind of video is most engaging to your audience. This metric is important because YouTube's algorithm promotes channels and videos with higher watch times. YouTube does this with a few other metrics as well, including average view duration, average percentage viewed, and audience retention.

Average View Duration and Percentage Viewed

Average view duration is the total watch time of a video divided by its total number of views. This metric represents the video's capacity to engage and retain viewers. Average percentage viewed is the percentage of each video watched by the average viewer. Increasing the average view duration and average percentage watched will boost the video's search and recommendation rankings on YouTube's website, making it easier for others to find.

Audience Retention

Audience retention refers to the percentage of viewers leave at specific parts of a video. Portions of a video with higher audience retention rates can be mirrored in future outreach attempts in order to keep viewers engaged. Similarly, portions of a video with lower audience retention rates can be determined as unengaging or boring to the audience. YouTube boosts videos with higher audience retention rate in their search and recommendation rankings.

Facebook

Facebook is an important outreach tool. Homeowners typically fall in the age range of 30 - 60 years old, and within that group, 84% of people between of 30 - 49 years of age and 72% of people between 50 - 64 years of age are on Facebook. Facebook also allows advertisers to tailor their advertisements to specifically show up for the target audience.

Facebook Metrics Overview

Facebook Analytics (https://www.facebook.com/insights) offers a variety of account metrics. The Facebook page's total likes, unlikes, and follows are available, as well as additional metrics on the type (organic vs. paid) of like and where it occurred (on your page, suggestions, etc.). An individual post's reach, engagement, and overall impressions can be viewed. Facebook also offers video metrics, including how long the video is typically viewed for, when the audience drops off, total video engagement, etc. Google Analytics (further discussed in Chapter 6) can be used to monitor referral traffic, which is the users who visited your website from your Facebook page. Finally, advertising metrics, such as click-through rate, cost per click, cost per thousand impressions, cost per action, and ad frequency, are also available.

Accessing the Metrics

To access Facebook metrics, first go to the home page of the Facebook page. There is a bar along the top of the page (as shown in Figure B3). To access the metrics for the page, click on the metrics tab (boxed in black in Figure B3). Clicking the metrics tab will lead to an overview page of all the metrics (shown in Figure B4). This page shows graphs for the page's major metrics over either the past week, two weeks, or month depending on the timing window selected. The different types of metrics collected are listed on the left side of this page (boxed in Figure B4). Clicking on any of these metrics will show a more in depth look at that specific metric.

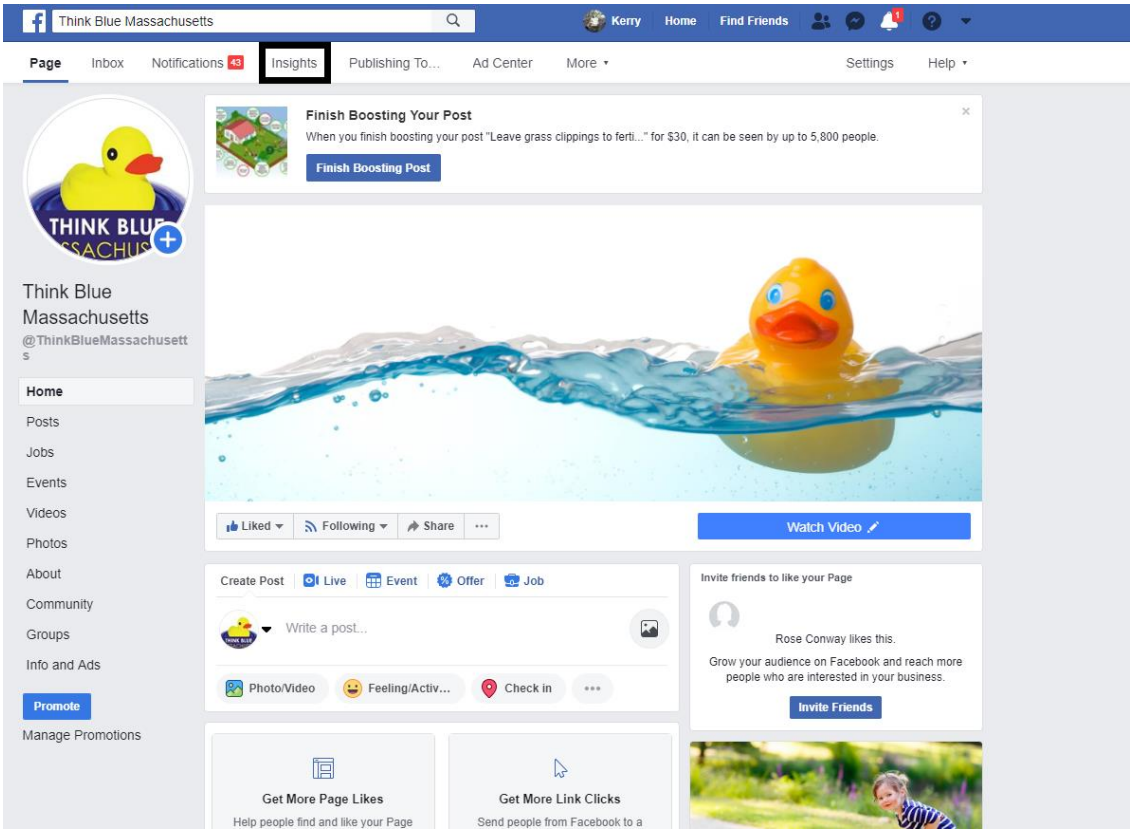

Figure B3: To see a page with an overview of all the metrics Facebook collects about a page, click the "Insights" tab, which is boxed in black, on the task bar at the top of the page.

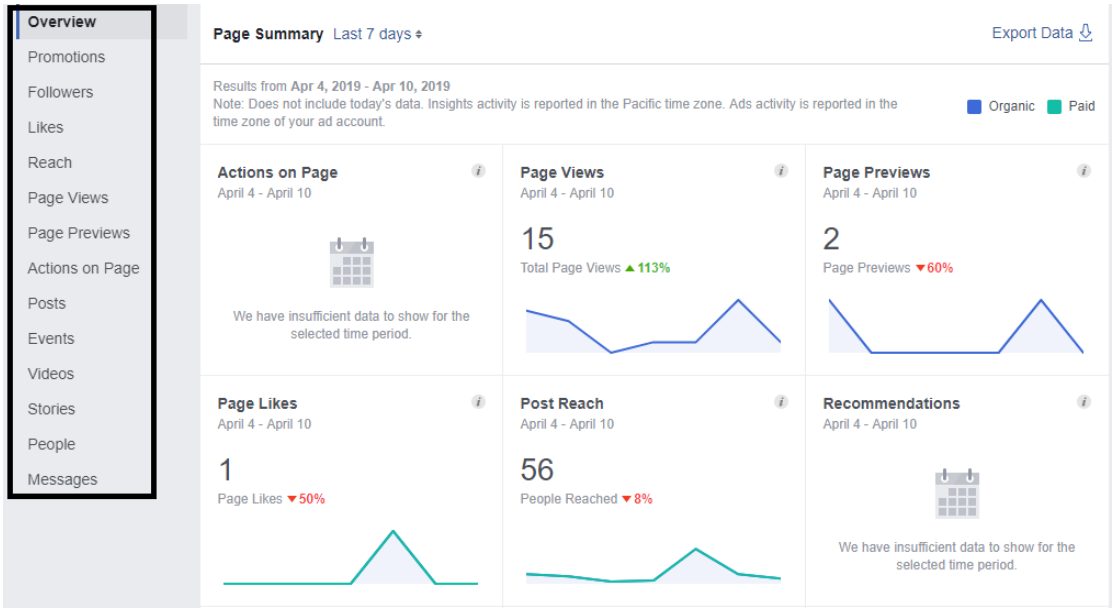

Figure B4: This is the overview page that shows all the different metrics that Facebook collects. To see more detailed information about any individual metric, click on one of the metrics from the menu on the left side of the page (boxed in black).

Facebook Advertisements

1. Log into the Think Blue Massachusetts Facebook page
2. Search and open Facebook Business in Google and select "Create ad" in the top right corner
3. Create the ad
    a. Choose the marketing objective
        i. Recommended: **Reach** or **Brand Awareness**
    b. Create ad account
        i. IMPORTANT: Select **Advanced Options** and set Think Blue Massachusetts as the account name
    c. Link Think Blue Massachusetts Facebook page
    d. Create new audience

i. Location: type **Massachusetts** out fully in the audience bar to receive the whole state as an option
ii. Age range: Recommended 30 - 60 years old
iii. Gender: Select **All**
iv. Language: leave blank
v. Detailed Targeting: Add demographics of people Think Blue wants to target, i.e. under **Demographics** then under **Parents** you may choose **Parents All** or select the age range of the children of the parents you want to target
vi. Add a Connection Type: Recommended that you scroll to the bottom of the selection and choose **Advanced Combination**, then add Think Blue Massachusetts Facebook page for the first two entries and leave the third entry blank

e. Placements
    i. Recommended to use **Auto Placements**

f. Budget and schedule
    i. Select **Advanced Options**
    ii. Budget: Recommended that you choose a **Lifetime Budget** so that the ads will not cost over a certain amount
    iii. Schedule: Recommended that you choose **Start and End Date** as this will determine how long your chosen ads will run for
    iv. Optimization for ad delivery: **Reach** for more people, **Impressions** for more ads per person.
    v. Frequency cap: Set how many times a person will see your ad for a period of days, e.g. your ad will be shown a maximum amount of three times every seven days.
    vi. Bid strategy: Recommended you leave this blank for the most cost-effective strategy; this will, however, put Facebook in charge of your ad bids

vii. Ads scheduling: Set times for when the ads will be shown, recommended: 7am, 12am, 6pm - 11pm

viii. Make your ad

YouTube

YouTube, which is both a social network and a search engine, is a powerful outreach tool due to its reach and traffic. It reaches more people in the 18 – 49 age group than any cable network provider in the United States. Almost one-third of the internet (over 1.9 billion people) are YouTube users, and they generate one billion hours of views daily. YouTube has also seen rapid growth in the recent years. The number of channels on YouTube with more than one million subscribers increases by 75% annually. YouTube is an indispensable social marketing and advertising platform.

YouTube Metrics Overview

YouTube offers easily accessible metrics regarding your channel and videos. Similar to other social media platforms, you can view your subscriber growth, engagement (e.g. likes, comments, shares), and traffic sources. Regarding a channel's videos, YouTube has a variety of metrics. The total amount of minutes viewers have watched your videos (watch time), the percentage of each video watched, viewing duration, audience retention, and click-through rates are available. The demographics of the audience, such as their age, gender, and geographical locations, can be viewed. This specific feature allows for the comparison of your actual audience versus your target audience, which can be useful in determining how your messages are reaching your target audience and what adjustments should be made.

Accessing the Metrics

To access the YouTube metrics, click on your profile picture on the top right corner of the YouTube website after logging in. A popup with options will appear. Select "YouTube Studio", which is outlined in a red box in Figure B5. This option will bring redirect you to your channel's dashboard (as seen in Figure B6), which allows you to navigate to your video and channel analytics.

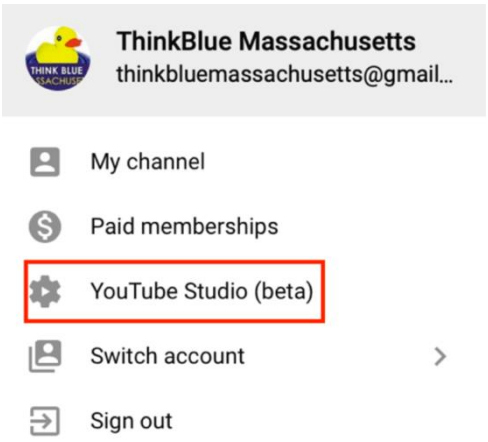

Figure B5: Popup menu which allows you to navigate to YouTube Studio.

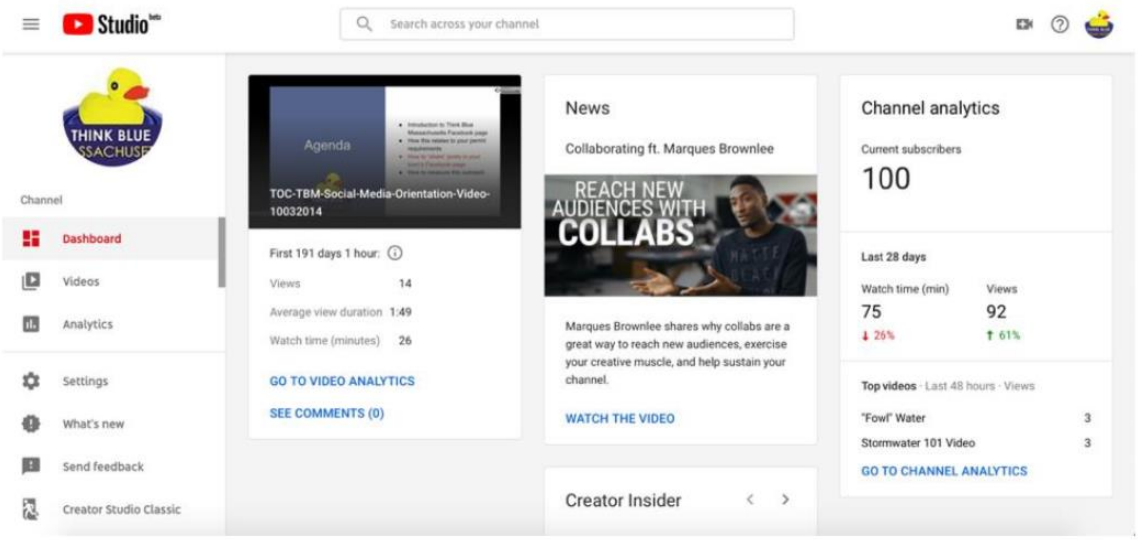

Figure B6: After redirecting to YouTube Studio, your channel's dashboard will appear, which features quick metric summarizations and news.

Under the YouTube Studio logo on the left of the screen, the two most important options are "Videos" and "Analytics". Selecting "Videos" (see Figure B7) shows a dashboard with your uploaded videos. For each video, its visibility (whether it is public or private), its publish date,

total views and comments, and likes vs. dislikes ratio is available. Figure B8 below shows the dashboard format, along with the video metrics.

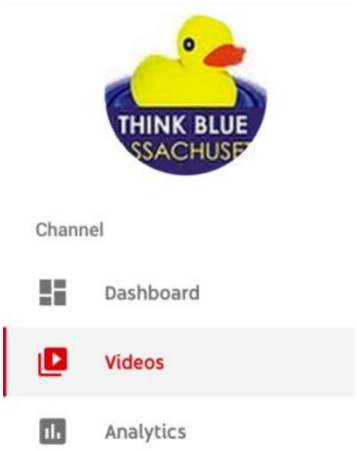

Figure B7: The "Videos" tab, which is available on the left of the screen.

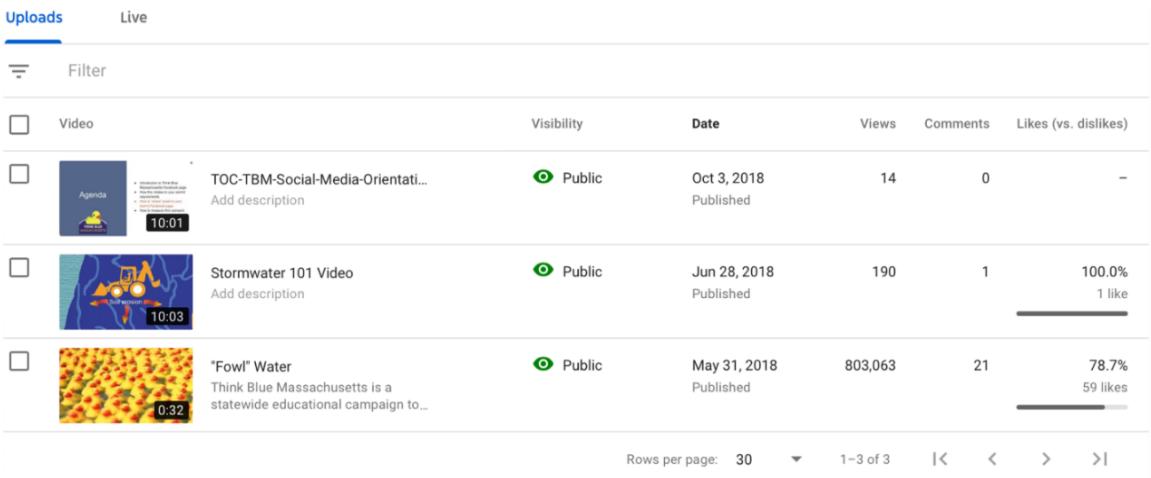

Figure B8: After redirecting to YouTube Studio, your channel's dashboard will appear, which features quick metric summarizations and news.

Selecting "Analytics" (see Figure B9) will redirect you to the overview tab of your dashboard, which includes your watch time, views, and subscribers over the last 28 days

(outlined in red). The time range can be altered to reflect changes over any particular period of time (outlined in yellow). Additionally, the channel's top videos are available on the bottom left panel, ranked by their watch time (outlined in green). The panel on the bottom right shows your most recent channel activity, including the most viewed videos (outlined in purple) (see Figure B10).

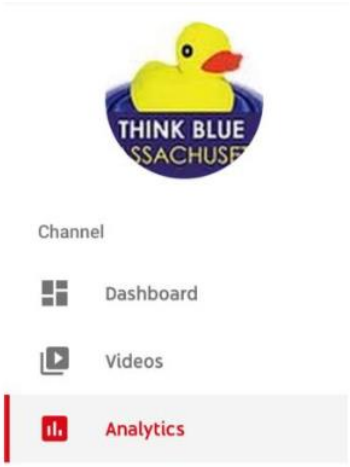

Figure B9: The "Analytics" tab, which is available on the left of the screen.

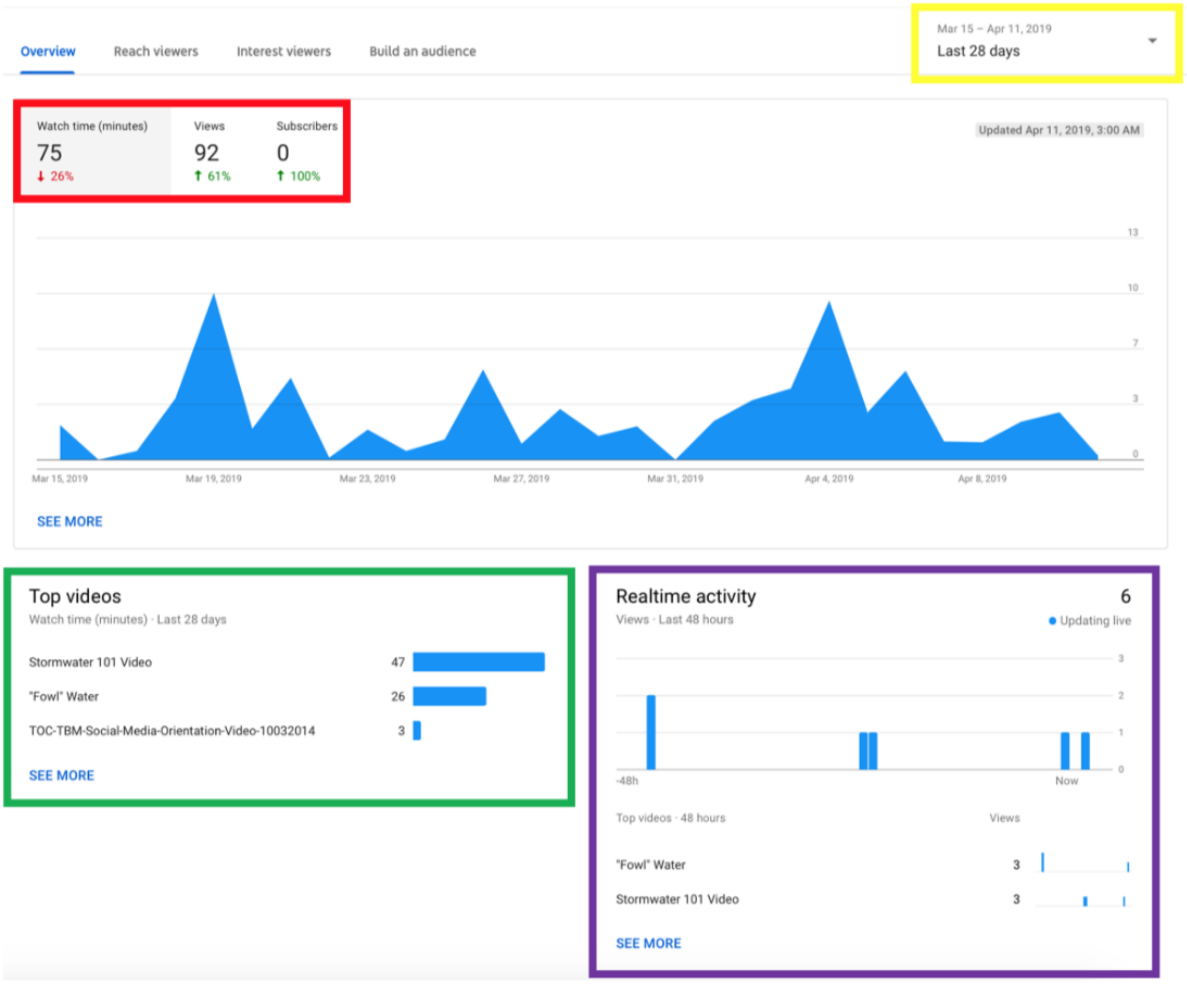

Figure B10: The Analytics overview dashboard. Watch time, views, and subscribers are seen in red. The time range, which can be changed, is outlined in yellow. The bottom left panel, outlined in green, shows the most popular videos in terms of watch time over a time range. The bottom right panel, outlined in purple, shows the channel's most recent view activity.

YouTube Advertisements

1. Create an account on Google AdWords
    a. Adwords.google.com/video
2. Link AdWords and YouTube

3. Set your desired daily budget
    a. Typical price is $0.1 to $0.23 per ad
    b. Only paid if viewer watches the entire ad
4. Set ad location
    a. Useful for targeting viewers around the organization
    b. Can be very specific, such as zip codes, IP addresses, etc., or broad, such as regional
5. Upload the advertisement to your YouTube account
6. Advanced settings
    a. Shut off ads from 12 am – 6 am
    b. Schedule ads to run more frequently during lunch hours and other times that your audience may be free (ex. 6 pm – 9 pm)
7. Target specific devices (if necessary)
8. Target specific ages, genders, topics/interests/categories, etc.
9. Choose keywords
    a. Make the keywords as specific as possible to capture the right audience

Twitter

Twitter is a social media platform used by 40% of people aged 18-29. This demographic represents future and current young parents and homeowners. It is the single fastest source of news in the world, allowing real time updates to world events and issues; it is estimated that 71% of Twitter users read news there. Additionally, people are 31% more likely to remember things they have seen through Twitter. Twitter's advertising engagement saw a 50% increase between October 2017 and 2018, and this trend is expected to continue. Twitter is an effective platform to reach millennials.

Twitter Metrics Overview

Twitter Analytics (https://business.twitter.com/en/analytics.html) is key to tracking the quality of your tweets and the engagement of your audience. By using the metrics provided by Twitter Analytics a marketer can determine who their audience is, what resonates with them, what their peak usage hours are, and how effective their tweets and ads are. This allows marketers to quantitatively gauge responses and engagement. If you are more money conscious, then these metrics can also tell you the cost of engagement per tweet. Using these tools can improve a marketing campaign.

Promote Mode

Twitter also features a "Promote Mode" which costs a flat rate of $99 a month for accounts that are eligible. In order to define an eligible account Twitter has set the following requirements: first, that the account is active and public. Second, the account must have a proper header image, profile image, description (including a linked website). This will allow the user to have their Tweets spread to new user's feeds. Despite costing a flat rate, it is more effective the more often you use Twitter. Twitter Business states that promoted tweets with videos saved 50% on their cost per engagement and attracted ten times as much user engagement.

Accessing the Metrics

To access the Twitter metrics, click on your profile picture on the top right of the Twitter website. Select "Analytics" from the menu that appears, which is outlined in red in Figure B11. You will be redirected to the Analytics home page, seen in Figure B12. A 28 day summary for the account is available at the top of the dashboard, which features the number of tweets, impressions, profile visits, account mentions, and followers.

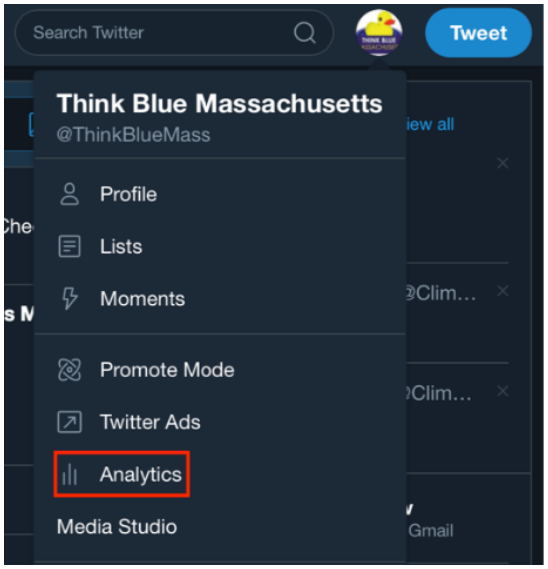

Figure B11: The "Analytics" tab, which is available from the drop menu.

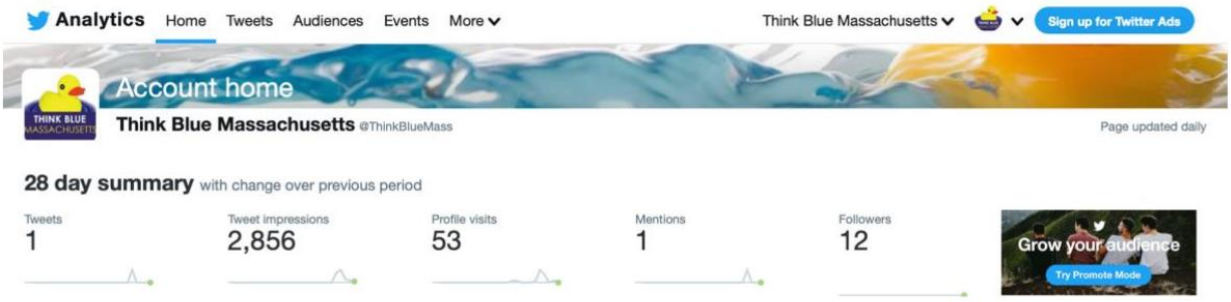

Figure B12: After redirecting to Twitter Analytics, you will be redirected to the account's dashboard. At the top of the dashboard is the 28 day summary.

Underneath the 28 day summary is a dashboard of recent Twitter highlights, such as your top Tweet (measured by its total impressions), top mention (measured by total engagements), and top follower. On the bottom right of the dashboard, outlined in red in Figure B13, there is a recent Twitter summary which displays the same metrics as the 28 day summary.

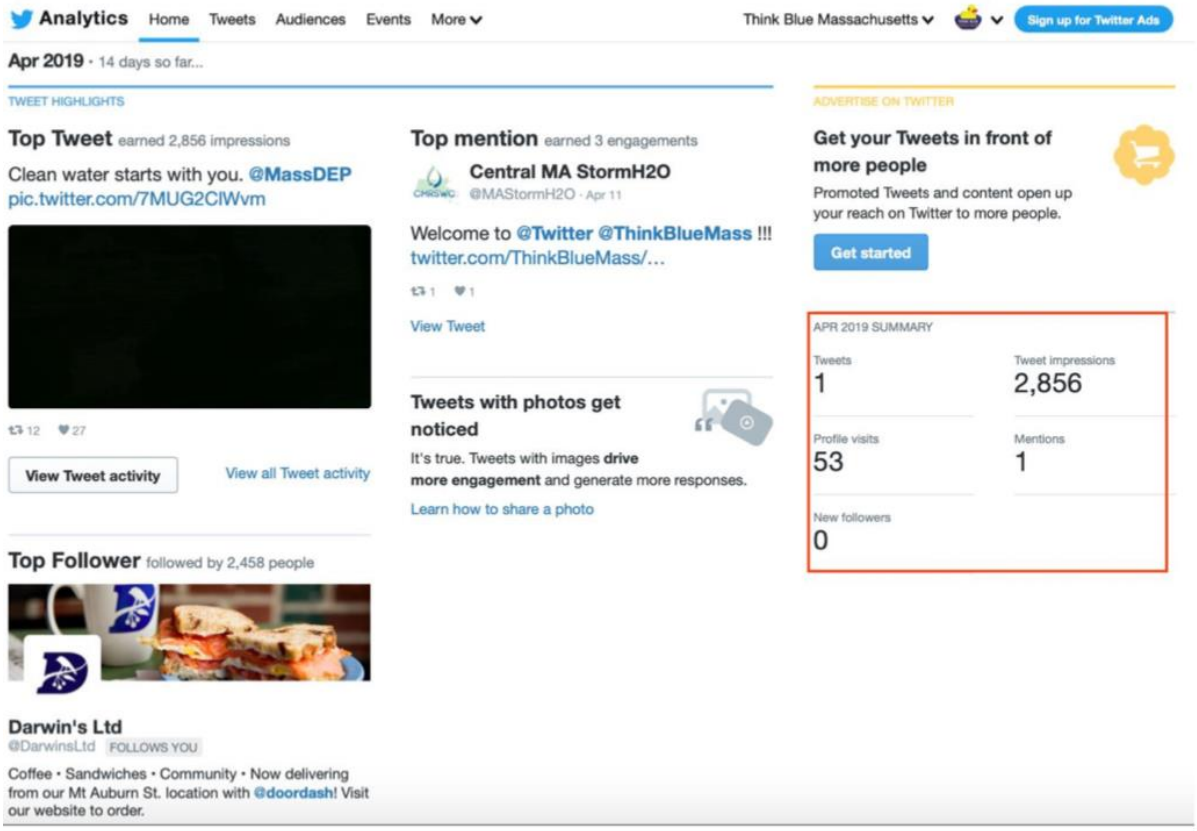

Figure B13: Overview of the Analytics Home dashboard.

Clicking on the "Tweets" tab, outlined in red in Figure B14, redirects you to metrics regarding your Tweets. The impressions for all Tweets in a given time period, which can be altered, are available. Additionally, metrics for individual Tweets are given, also seen in Figure

B14. The impressions, engagements, and engagement rate are available next to their respective Tweet.

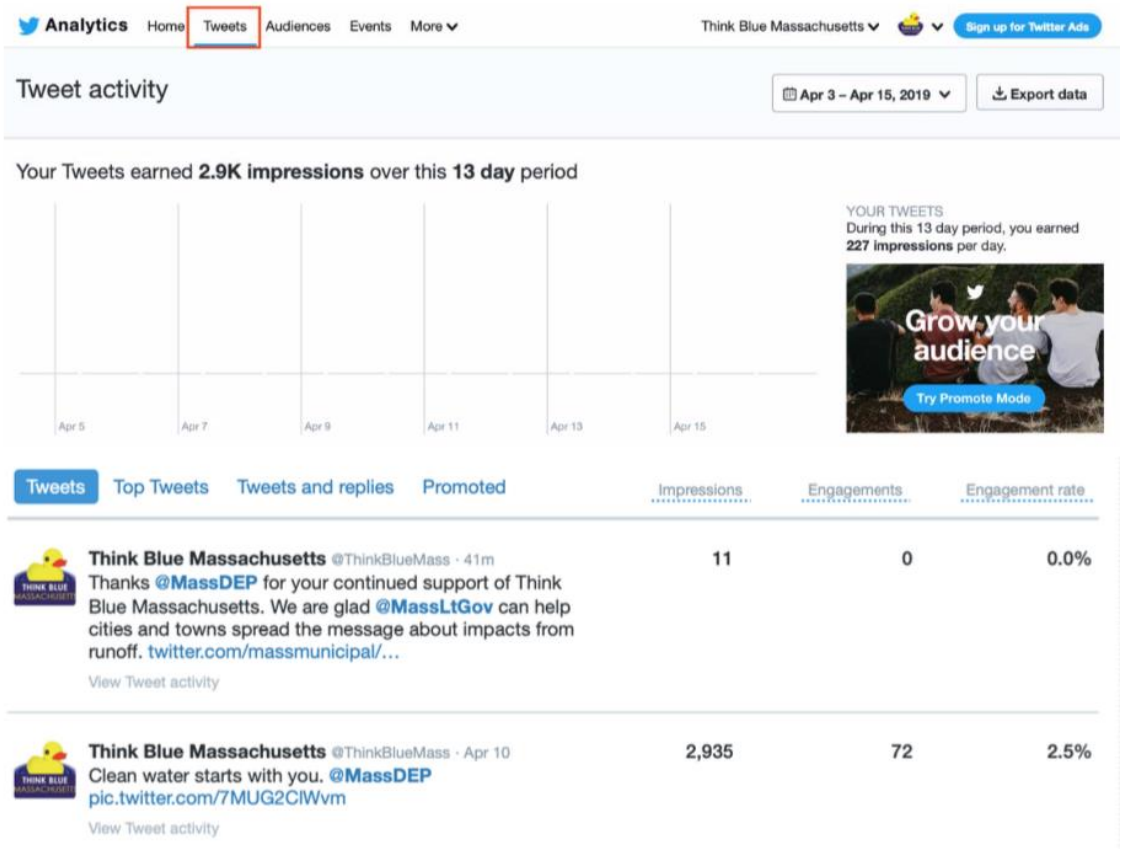

Figure B14: Overview of the Analytics Tweets dashboard.

On the right of the screen, a summarization of key metrics is provided in a column. A few of these metrics can be seen in Figure B15. The metrics included in the sample screenshots are engagement rate, link clicks, and retweets, though there is information available for likes and replies.

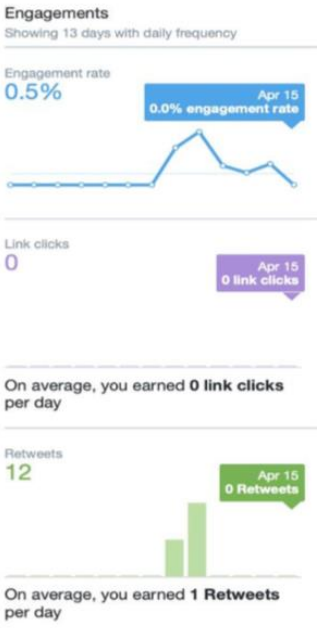

Figure B15: Sample metrics available in the column on the right side of the page.

If there are videos posted on the Twitter account, their metrics can also be viewed. To do this, click on the "More" tab and click on "Videos". These options are outlined in red in Figure B16.

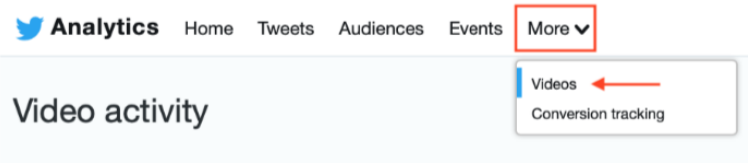

Figure B16: Reaching video metrics on Twitter.

Once redirected to the video activity dashboard (seen in Figure B17), you are presented with a summary of videos published over the last 28 days, and this time period can be altered. Directly under "video activity" is a count of the total video views over the span of time since they were uploaded. Underneath the view count is an overview of the videos posted, along with

their respective views and completion rate, which represents the percentage of viewers that watched the entirety of the video.

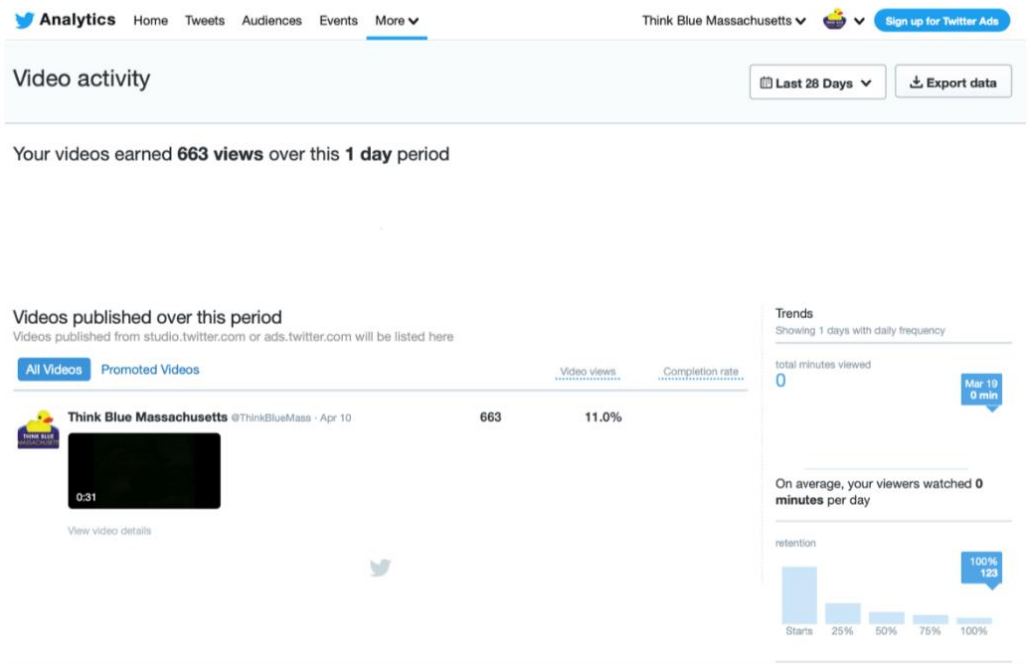

Figure B17: Overview of the Analytics Videos dashboard.

At the top right of the page on any Analytics tab, there is the option to export the data, usually placed next to the time range (seen in Figure B18). Selecting this option will download a Microsoft Excel sheet of the data relevant to the dashboard you are viewing. It is often more comprehensive than the summaries provided.

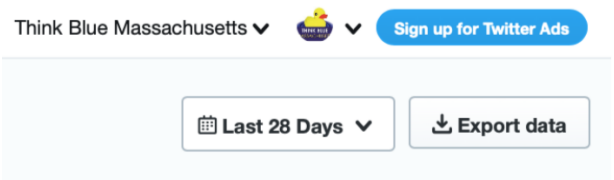

Figure B18: "Export data" option next to the time range.

Twitter Advertisements

1. Log into the Think Blue Massachusetts Twitter profile
2. Search and open Twitter Ads in Google and select "Go to Twitter Ads" on the right
3. Create the ad
    a. Choose the marketing objective
        i. Recommended: **Awareness, Followers** or **Tweet Engagement**
    b. Create your campaign
        i. Name your campaign: Any name, specify if you plan on creating more than one
        ii. Campaign budget: Recommended that you choose a **Total Budget** so that the ads will not cost over a certain amount
        iii. Pacing: **Standard** is recommended, this is under **Advanced Options**
        iv. Schedule: Recommended that you choose a start and end date for the campaign to run
        v. Ad group: A single ad for your campaign, name it
            1. Specify the start and end time if it is seasonal
            2. Set a total ad group budget if you want this ad to have its own budget (separate to Campaign Budget)
            3. Recommended you choose **Automatic** for the bid type
        vi. Gender: Select **Any**
        vii. Age Range: Recommended 35 years and older
        viii. Location: type **Massachusetts** out fully in the audience bar to receive the whole state as an option
        ix. Audience Features: Type in keyword **Stormwater**
        x. Recommendations: Turn ON
        xi. Retarget people who…: Turn ON
        xii. Select Tweets you want to advertise
    c. Launch the campaign

Website

Having a website is one of the most important tools for any program because you can not only provide a central location for all your materials, but you can also see exactly how many people are directly engaging with your information. Using an analytics program is one of the most direct ways to track engagement on your website. Since the website is where Think Blue's outreach materials on stormwater awareness and prevention are located, monitoring how many people view the website is an instrumental part of tracking the effectiveness of the program.

Website Metrics Overview

The types of data you can get by tracking a website depends on the tool used for collecting the metrics. Generally, the tracking tool shows how many visitors have been to the website and at what times of the day. In addition to this, certain metrics show how much time people spent on the website. Some tools may include visitor demographics rather than only the quantity of people. Having all these analytics is important because they give an accurate representation of how successful the website is in outreach.

Metric Collection Tools

There are two suggested ways to track the traffic of your website. The Wix Analytics tool can only be used if you have a website created through Wix. This tool easy to use and implement, but it does not show a detailed report. Google Analytics is a free tool that provides a wide range of data including demographics, interests, location, and other metrics.

Google Analytics

1. Create Google Analytics account
    a. Go to www.google.com/analytics
    b. Click **Start for Free** and follow the steps
2. Set up a property (your website) in the account
    a. Click **Admin**

b. In the Account column, use the menu to select the account to which you want to add the property
c. In the Property column, select **Create new property**
d. Select website and enter the name and the URL of the website
e. Select an Industry Category so that you can use goal templates
f. Select the **Reporting Time Zone**
g. Click **Get Tracking ID**, as this will allow you to access your data

3. Set up a reporting view in your property
    a. Click **Admin**
    b. In the View Column, select **Create new view**
    c. Select **Website**
    d. Enter **Name** and select **Reporting Time Zone**
    e. Click the toggle **ON** to create a User ID View
4. Add the tracking code to your website
    a. In Wix, go to Marketing Integrations
    b. Go to **Google Analytics** and click **Go for it**
    c. At the top right click **Connect Google Analytics** and paste the User ID View
    d. Select **IP Anonymization** checkbox and Click **Save**

Accessing the Metrics

To access metrics on Google Analytics, first go to www.google.com/analyticsand sign in. From the top of the homepage select the property (your website) you want to view the metrics for. An overview of most of the graphs is shown in Figure B19 below.

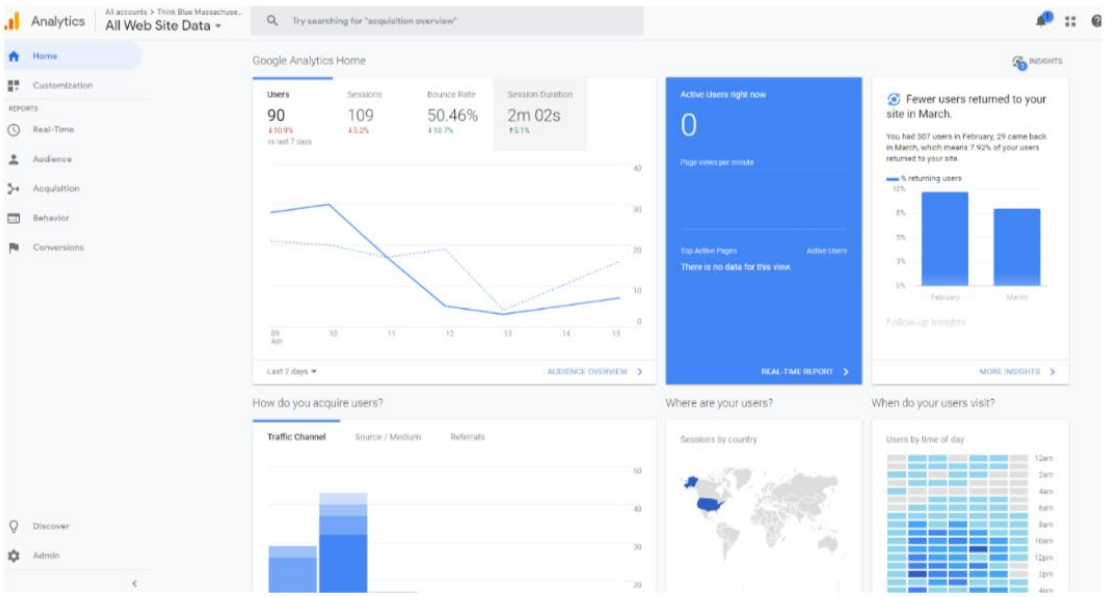

Figure B19: Home page of Think Blue Massachusetts' Google Analytics.

In order to view the total users graph and determine the total amount of users that have visited the site, navigate to the left-hand side of the screen and choose the "Audience" tab. Under the "Audience" tab, select "Overview" (see Figure B20).

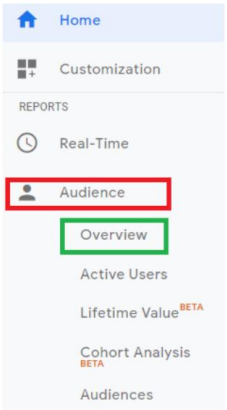

Figure B20: Left side tab on the home page, which redirects you to "Audience".

Set the graph to show metrics for a certain period on the right top of the page, outlined in red in Figure B21 below. Set the graph to show months by clicking on the right top of the graph, outlined in green. The page shows data in forms of a graph, pie chart, and row data.

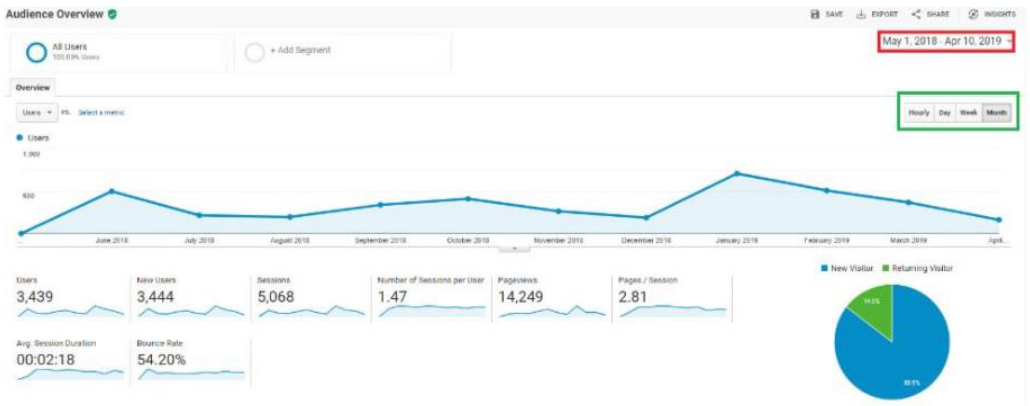

Figure B21: Total users graph set up to reflect May 1, 2018 to April 10, 2019. The time range is outlined in red. The time intervals on the graph are outlined in green.

To view the “Impressions and Engagement” graph, select “Behavior” on the left menu and click “Overview” (see Figure B22).

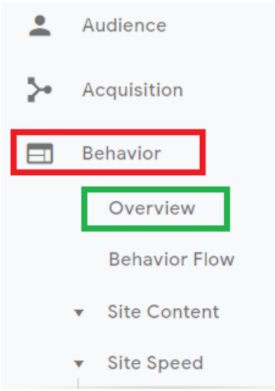

Figure B22: Left side tab on the home page, which redirects you to “Behavior” (outlined in red) and “Overview” (outlined in green).

The graph can be altered to reflect metrics for specific time periods. The time range is outlined in red at the top right of the graph in Figure B23. The graph can be set to show different time intervals for metrics, which is outlined in green. This graph shows how much time a website visitor spends on all website pages. The yellow box includes metrics that are important to analyze.

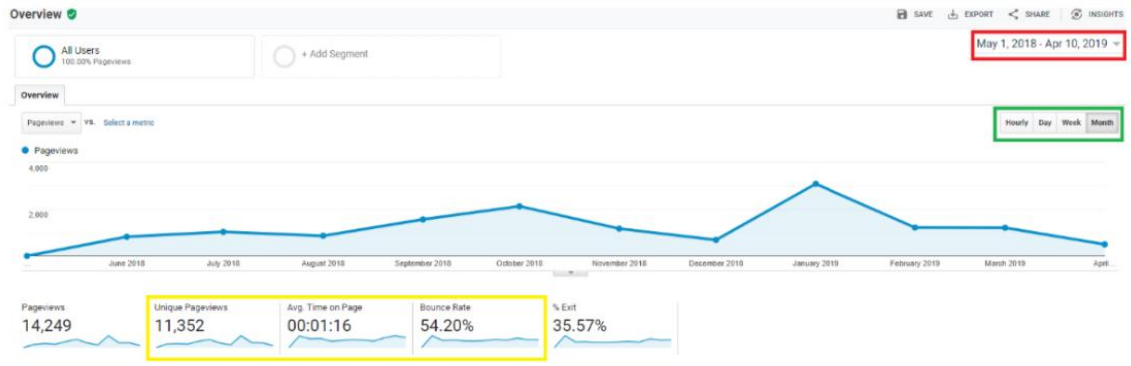

Figure B23: Engagement and impression graph. The time range is outlined in red, the time intervals on the graph are outlined in green, and the important metrics are outlined in yellow.

Wix Analytics

1. Access the Blog Manager
    a. Accessing the Blog Manager from the Editor:
    b. Click **My Blog** on the left side of the Editor
    c. Click the **Blog Manager** tab
    d. Click **Manage Your Blog**
2. Click **Insights**
3. Click **Site traffic**
4. Under "How Many Times is Your Site Visited?" choose the time frame you wish to view from the top right corner:

a. Last Week: This view displays the number of site visits during the past 7 days
b. Last 3 Months: This view displays the number of site visits during the past 3 months
c. Last Year: This view displays the number of site visits during the past year
d. Note: The number beneath the title is a sum of the site's visits in the chosen time frame

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